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Bureau of Land Management
El Centro Field Office
1661 South 4th St
El Centro, CA 92243

May 2003

Final Environmental Impact Statement for the **Imperial Sand Dunes Recreation Area Management Plan** and Proposed Amendment to the California Desert Conservation Plan 1980





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Our Vision

To enhance the quality of life for all citizens through the balanced stewardship of America's public lands and resources.

Our Mission

To sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

Our Values

To serve with honesty, integrity, accountability, respect, courage, and commitment to make a difference.

Our Priorities

To improve the health and productivity of the land to support the BLM multiple-use mission.

To cultivate community-based conservation, citizen-centered stewardship, and partnership through consultation, cooperation, and communication.

To respect, value, and support our employees, giving them resources and opportunities to succeed.

To pursue excellence in business practices, improve accountability to our stakeholders, and deliver better service to our customers.

Final Environmental Impact Statement

For the

Imperial Sand Dunes Recreation Area Management Plan

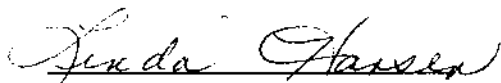
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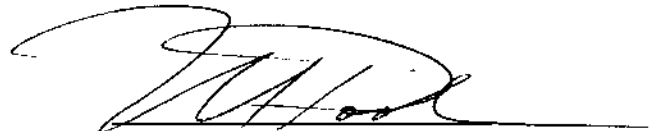
California Desert Conservation Plan 1980

Prepared by
Department of the Interior
Bureau of Land Management
California Desert District
El Centro Field Office

May 2003



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Cover Sheet

Imperial Sand Dunes Recreation Area Management Plan Final Environmental Impact Statement and Plan Amendment

Agency:	U.S. Department of the Interior Bureau of Land Management California Desert District El Centro Field Office
Project Location:	Imperial Sand Dunes Recreation Area Imperial County, California
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Abstract:	<p>The document is an Environmental Impact Statement for a proposed Recreation Area Management Plan (RAMP) and plan amendment to the 1980 California Desert Conservation Area Plan. The RAMP provides a process to balance recreational use of the ISDRA with conservation of natural resources.</p> <p>This document was produced through a coordinated process involving numerous local, state, and federal agencies, special interest groups and private citizens.</p>

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EXECUTIVE SUMMARY

The Bureau of Land Management (BLM) has prepared this Environmental Impact Statement (EIS) to analyze the potential environmental impacts from the revision and updating of the 1987 *Recreation Area Management Plan and Environmental Assessment for the Imperial Sand Dunes*. A revised Recreation Area Management Plan (RAMP) will provide direction and guidance on the management of land use and resources in the Imperial Sand Dunes Recreation Area (ISDRA) that would be consistent with public needs and resource status. Implementing a revised RAMP would also constitute a Plan Amendment to the California Desert Conservation Area (CDCA) Plan, in accordance with BLM planning regulations (43 CFR 1610.3-2)

Background

The Imperial Sand Dunes Recreation Area (ISDRA) is the most popular Off Highway Vehicle (OHV) area in the southwest United States. It encompasses the most intensively visited recreational area in the CDCA. It provides a unique, world-class recreation opportunity. The primary recreational use is camping and the use of OHVs, principally dune buggies and all terrain vehicles. Other uses include photography, hiking, backpacking, nature studies, walking, hunting, rock collecting, right of way use for utility lines, canals and roads, filming, conservation activities and horseback riding.

Goals

The ISDRA will be managed to achieve the following guiding goals:

- Goal 1 - Provide a variety of sustainable OHV and other recreational activities.
- Goal 2 - Maintain or improve conditions of the special status species and other unique natural and cultural resources.
- Goal 3 - Create an environment to promote the health and safety of visitors, employees, and nearby residents by working with local, state, and federal agencies and interest groups.

The management of the ISDRA would be multi-faceted. It would increase the effectiveness of law enforcement, provide sustainable recreational opportunities, and conserve natural and cultural resources.

Approach

The three action alternatives evaluated in the EIS propose managing the ISDRA based on 8 individual management areas. The eight individual management units are:

- Mammoth Wash Management Area
- North Algodones Dunes Wilderness Management Area
- Gecko Management Area
- Glamis Management Area
- Adaptive Management Area
- Ogilby Management
- Dune Buggy Flats Management
- Buttercup Management Area

Each management area would offer specific recreational opportunities based on the Recreation Opportunity Spectrum (ROS) classification system. The ROS system determines the visitor supply and types of available services based on a desired recreational opportunity. The recreational opportunity classification for each management area would determine the types of recreation, level of development and types of services that would be available in that management area.

Challenges

The continued popularity of the ISDRA has resulted in a large increase in visitors. In addition, part of the ISDRA was designated as Wilderness, reducing the available land for OHV recreational use. Also, the ISDRA is home to several sensitive species. The management challenge of balancing the increasing demand for OHV recreation and conservation of special status species was addressed through the development of an Adaptive Management Area. One of the major challenges in developing a management plan is integrating sustainable habitat and recreational use for the Adaptive Management Area. A permitting process would be established to allow limited OHV use of this management area, while conserving the habitat and species in the area. An intensive resource and recreation monitoring and analysis program would be implemented in conjunction with the permitting process. There would be continued adjustments to the allowed level of use for the area based on the monitoring and analysis. During the first year of the permitting process, no more than 525 vehicles would be allowed into the Adaptive Management Area by permit on any day. The first year would be designed to obtain information on visitor supply and biological needs and future permit numbers would be adjusted accordingly.

To ensure that world class recreational opportunities are continuously available at the ISDRA, a recreation mitigation process is defined in the RAMP. This process would replace areas that are closed to camping because they are sensitive areas (such as woodland microphyl) by developing new camping areas in less sensitive locations such as Gecko Road.

The continued popularity of the ISDRA has attracted groups of individuals who frequent the ISDRA for its party atmosphere, rather than for recreational use. These individuals participate in lawless behaviors. The Alternatives in the EIS continue to emphasize a co-operative approach to law enforcement. Local, State and Federal law enforcement Officers, working together, would provide increased law enforcement. In addition, several management techniques could be implemented to increase law and order. These techniques include establishing curfews and restrictions in areas of historic lawlessness and limiting

alcohol use to established camping areas. It is anticipated that increased law enforcement would restore a safe family atmosphere at the Imperial Sand Dunes Recreation Area.

Alternatives

Four alternatives are considered in the EIS. They are:

Alternative 1: No Action Alternative

Alternative 2: Recreation and Resource Protection Alternative

Alternative 3: Natural and Cultural Resource Alternative

Alternative 4: Motorized Recreation Opportunities Alternative

Alternative 2 is the preferred alternative. The table below compares the alternatives:

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Recreation	This alternative does not place a limit on visitor supply.	This alternative will provide for a visitor supply of 80,444 visitors on any day.	This alternative will provide for visitor supply of 20,688 visitors on any day.	This alternative will provide for a visitor supply of 274,147 visitors on any day.
Type of OHV Use	none in wilderness, unlimited use in all other areas	8 areas, 1 closed to OHV use, 1 permit use only, 6 unlimited use	8 areas, 3 closed to OHV use, 5 unlimited use	8 areas, 1 closed to OHV use, 1 permit use only, 6 unlimited use
ROS Classification	None	8 areas, 1 semi-primitive non-motorized, 2 semi-primitive motorized, 3 roaded natural, 2 rural	8 areas, 3 semi-primitive non-motorized, 3 semi-primitive motorized, 2 roaded natural	8 areas, 1 semi-primitive non-motorized, 2 roaded natural, 3 rural, 2 urban

Acreage (159,072 total BLM managed acres in ISDRA)	26,202 acres for Wilderness 132,870 acres for unlimited use	26,202 acres for Wilderness 33,289 acres for permit use 99,581 acres for unlimited use	26,202 acres for Wilderness 41,394 acres for no OHV use 91,476 acres for unlimited use	26,202 acres for Wilderness 33,289 acres for permit use 99,581 acres for unlimited use
Air Quality	No action	Dust Control Plan	Dust Control Plan	Dust Control Plan
Public Safety Facilities	No Action	New ranger station at Cahuilla and Buttercup, both for law enforcement and public education.	No new law enforcement facilities, but ranger public education facilities would be built at Osborne Outlook. The temporary ranger station would remain at Buttercup.	New ranger station at Cahuilla and Buttercup.
Law Enforcement	Zero Tolerance Policy towards assaults, alcohol and drug abuse, and other serious violations. Continue cooperative approach with other law enforcement agencies.	Zero Tolerance Policy towards assaults, alcohol and drug abuse, and other serious violations. Continue cooperative approach with other law enforcement agencies.	Zero Tolerance Policy towards assaults, alcohol and drug abuse, and other serious violations. Continue cooperative approach with other law enforcement agencies.	Zero Tolerance Policy towards assaults, alcohol and drug abuse, and other serious violations. Continue cooperative approach with other law enforcement agencies.

		<p>Add new tools including curfews and restrictions in lawless areas and alcohol limitation. Visitor use and incident data will be monitored and will be used to evaluate the need for these tools and to develop the criteria for their use. These tools would be used as needed, but are not expected to be used continuously.</p> <p>Strictly apply current laws and aggressive visitor education to address sand drag safety issues.</p>	<p>Add new tools including curfews and restrictions in lawless areas and alcohol limitation. Visitor use and incident data will be monitored and will be used to evaluate the need for these tools and to develop the criteria for its use. These tools would be used as needed, but are not expected to be used continuously.</p> <p>Strictly apply current laws and aggressive visitor education to address sand drag safety issues.</p>	<p>Add new tools including curfews and restrictions in lawless areas and alcohol limitation. Visitor use and incident data will be monitored and will be used to evaluate the need for these tools and to develop the criteria for its use. These tools would be used as needed, but are not expected to be used continuously.</p> <p>Strictly apply current laws and aggressive visitor education to address sand drag safety issues.</p>
Social economic	No free days	Add 7 free use days in December.	Add 7 free use days in December.	Add 7 free use days in December.
Vending	<p>No change, vending would be allowed 7 days a week in 4 locations. Vendors would continue to compete with</p>	<p>No changes until October 2003</p> <p>Vending from noon Thursday through noon Monday at the 3 short-term</p>	<p>No changes until October 2003</p> <p>Vending from noon Thursday through noon Monday at the 3 short-term</p>	<p>No changes until October 2003</p> <p>Vending from noon Thursday through noon Monday at the 1 short term</p>

	private landowner businesses located adjacent to the ISDRA.	<p>vending areas.</p> <p>Additional vending days are allowed around holiday periods.</p> <p>1 long term vending area (7 days a week.)</p>	vending areas.	<p>vending area.</p> <p>Additional vending days are allowed around holiday periods.</p> <p>3 long-term vending areas (7 days a week.)</p>
Fiscal	No Change, BLM would be dependant on grants and appropriations to provide services at the ISDRA in addition to some funding from recreation fees.	<p>Develop a Business Plan to move towards a fee-based program.</p> <p>Reduce dependence on grants and federal appropriations.</p>	<p>Develop a Business Plan to move towards a fee-based program.</p> <p>Reduce dependence on grants and federal appropriations.</p>	<p>Develop a Business Plan to move towards a fee-based program.</p> <p>Reduce dependence on grants and federal appropriations.</p>

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CHAPTER 1

INTRODUCTION AND BACKGROUND

Introduction

The Bureau of Land Management (BLM) has prepared this Environmental Impact Statement (EIS) to analyze the potential environmental impacts resulting from the revision and updating of the Recreation Area Management Plan and Environmental Assessment for the Imperial Sand Dunes (BLM, 1987). A revised Recreation Area Management Plan (RAMP) would provide direction and guidance on the management of land use and resources of the Imperial Sand Dunes Recreation Area (ISDRA) that would be consistent with current public needs and resources status. Implementing a revised RAMP would also constitute an amendment to the CDCA Plan, in accordance with BLM planning regulations (43 Code of Federal Regulations [CFR] 1610.3-2). This EIS is prepared in accordance with National Environmental Policy Act (NEPA) of 1969, as amended, the President's Council on Environmental Quality Guidelines for the implementation of NEPA, and the BLM NEPA Handbook. The BLM is the lead agency for this EIS, and maintains primary responsibility for compliance with NEPA for actions on federal lands it manages. In addition, the BLM is responsible for consulting with the United States Fish and Wildlife Service (USFWS) to ensure that the preferred alternative complies with the Endangered Species Act (ESA).

The ISDRA, which comprises the largest mass of sand dunes in California, is located in Imperial County. The ISDRA is recognized as a world-class off-highway vehicle (OHV) recreation area because of the outstanding opportunities it presents for OHV recreational activities (BLM, 1987). It is one of the most popular OHV areas in the western United States, as evidenced by over 3 million OHV visitor-use days that occur annually at the ISDRA (BLM, 2001). In addition, the ISDRA provides unique habitat for several endemic and sensitive plant, insect, and animal species.

The ISDRA provides outstanding recreation opportunities for OHV recreation to the southern California region and the southwestern Arizona vicinity. To fulfill its obligations under the Federal Land Policy Management Act (FLPMA) and under the Endangered Species Act (ESA), the BLM manages recreational use after considering the effects of the recreational activities on the conditions of special-status species, and other unique natural and cultural resources. The FLPMA directs that the BLM's management of public lands emphasize "multiple use and sustained yield unless otherwise specified by law" and that "public lands be managed in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental ... values" (43 U.S.C. 1701 Sec. 102(a)(7)(8)). The type and level of OHV use, in particular, must also be carefully managed to create an environment that promotes the health and safety of visitors, employees, and nearby residents.

Continued population growth in southern California and Arizona and the expanding popularity of OHV recreation has resulted in a steady increase in demand for outdoor recreation at the ISDRA. From 1985 to the present, the number of visits to the ISDRA has roughly tripled (BLM, 1987 and 2001a). There have also been minor occurrences of occasional trespasses in the North Algodones Dunes Wilderness and on private lands, which has resulted in some conflicts among OHV enthusiasts, landowners, and concerned members of the public. Growing attendance, including an increasing number of individuals who visit the ISDRA for a party atmosphere, rather than for OHV recreation, also underlies, in part, the increased incidence of law enforcement violations.

This EIS is organized in four chapters. The remainder of Chapter 1 describes the purpose and need for revising and updating the 1987 RAMP, project setting, regulatory context, and issues concerns and opportunities identified during the scoping activities. Chapter 2 describes the alternatives (including the No Action and the action alternatives). The Affected Environment is described in Chapter 3, and Chapter 4 addresses and analyzes the environmental impacts, including the cumulative impacts, of the alternatives (including the No Action Alternative). Chapter 5 summarized the coordination and consultation for this project. Chapters 6, 7, and 8 include a list of document authors, references, and a combined glossary and list of acronyms, respectively. Appendix A contains a summary of the public comments and BLM's responses to these comments. Appendix B contains the monitoring plan. Appendix C contains reference air quality data.

Purpose and Need

As noted in BLM Manual 8322, a recreation area management plan.... "identifies the management actions to be implemented to achieve recreation related decisions.... is the link between the allocation of land for recreation use in the multiple-use planning process and the actions necessary to implement such allocations." (BLM Manual 8322.05A).

Purpose

The purpose of revising the 1987 Recreation Area Management Plan (RAMP) is to develop a guide for all resource management activities and to establish management actions for the ISDRA. A revised RAMP that updates the 1987 RAMP would be designed to provide a variety of sustainable OHV and other recreational activities, and to maintain or improve the conditions of the special-status species and other unique natural and cultural resources, while creating an environment to promote the health and safety of visitors, employees, and nearby residents. The purpose of the plan is to develop a RAMP to establish:

- Multiple use goals and ecosystem management prompts
- Management actions that fulfill the requirements of the Federal Land Policy and Management Act of 1976
- Management direction and actions applying to future activities in specific management areas, and

- Monitoring and evaluation requirements.

The RAMP embodies the provisions of the Federal Land Policy and Management Act, the implementing regulations, and other guiding documents. It is developed in accordance with the CDCA Plan and would amend portions of the CDCA Plan pertaining to recreation management in the ISDRA. It revises and replaces the 1987 RAMP.

The purpose of the project is to:

- Provide a process to allow the maximum recreational use of the ISDRA while maintaining the unique and diverse habitat of the dunes system. This process will allow adaptive use of at least one large geographical area with monitoring and evaluation of the habitat and the abundance of specific species. The monitoring and evaluation data will be used to make adjustments to the recreational use of the geographical area.
- Develop a large continuous geographical area for habitat and species conservation. This area will include all of the habitat types that are present in the dunes system. It is important that this area is continuous and that the habitat is not fragmented. Although this geographical area will be available for OHV and other recreational uses, the recreational use, habitat condition and species abundance will be monitored and the recreational use of the area will be adjusted as needed to conserve the habitat and species.
- Utilize sound science when making decisions concerning species conservation and multiple use of the ISDRA.
- Specify what levels of visitor use can be provided for motorized vehicle use in the ISDRA while maintaining the habitat requirements for special status species, conserving cultural resources, providing reasonable consideration for other important natural resources and promote the health and safety of visitors, nearby residents, employees and other service providers in the ISDRA. Institute measures to achieve specified visitor use levels. Establish criteria for modifying those measures or instituting additional measures if needed in the future based on monitoring of visitor use and the conditions and trends of special status species, cultural resources and important natural resources.
- Identify the type and level of visitor services, including facilities, needed to support desired visitor use. For services to be provided by BLM, the RAMP could identify cost for these services. The RAMP would establish a fee system such that the appropriate level of visitor services can be provided in an efficient, cost-effective manner.

- Guide the ISDRA beginning in 2002. It will normally be revised every ten years, but may continue to be used for up to fifteen years. It may be amended or revised at any time if the BLM Field Manager determines that conditions in the ISDRA have changed beyond those anticipated by this Plan, or if monitoring or project-level environmental analysis indicate a need for a change in management direction.
- Implement the EIS Preferred Alternative. It is the alternative the State Director has determined would most benefit the public. Careful consideration was given to coordinating and balancing various conflicting resource uses to arrive at a sustainable mix.
- Establish priorities. Management area allocations, actions, monitoring and evaluation requirements constitute a statement of BLM's intended direction. However, projected outputs, services and rates of implementation are contingent upon obtaining funding, including user fees, grants, agreements and the annual budgeting process.

The purpose of the CDCA Plan Amendment is to amend the CDCA Plan to remain consistent with the alternative that is selected in the Record of Decision.

Need

The ISDRA offers outstanding opportunities for OHV and other recreation in the California Desert District. In order to fulfill its management obligations under federal regulations, the BLM must carefully manage OHV recreation, so that the conditions of the special status species, and other unique natural and cultural resources are maintained or improved. The type and level of OHV recreation also must be carefully managed to create an environment that promotes the health and safety of visitors, employees, and nearby residents.

Since the previous plan was written in 1987, several of the projects identified have been implemented. Of the projects that were not implemented, some are no longer feasible. Therefore, it is critical to revisit some of the past decisions and determine whether or not new courses should be charted.

Since the 1987 RAMP, several regulatory changes have taken place that relate to the ISDRA. The U.S. Fish and Wildlife Service listed the Peirson's milk-vetch as a Federally threatened plant. The flat-tailed horned lizard had been proposed as Federally threatened and then withdrawn by the U.S. Fish and Wildlife Service. Public Law 103-433 designated the North Algodones Dunes Wilderness in 1994. Public Law 103-433 released Wilderness Study Area 362 from further studies concerning its suitability for wilderness designation. Analyzing this new information may lead to different management decisions in the future.

The proximity of the Imperial Sand Dunes Recreation Area to private land and the wilderness area requires that the BLM carefully manage the recreation, natural, and cultural resources and corresponding resource values (such as "scenic values") within the planning area to reduce potential impacts to these areas.

Southern California's continued population growth in the urban and non-urban areas and shifting demographic patterns have increased the demand for outdoor recreation at the ISDRA and nearby areas. It continues to be a management challenge to encourage appropriate recreational use, discourage inappropriate use, while respecting the freedom of visitors to enjoy the ISDRA.

In addition to discussing the positive recreational uses of the ISDRA, this plan discusses a variety of issues, their proposed solutions and opportunities for creative improvement.

On the basis of the purpose and need for this action and on the issues, concerns, and opportunities that were identified during the public scoping process, the BLM will establish long-term goals that describe desired conditions to be achieved during the implementation period of a revised RAMP.

ISDRA Overview

Location

The ISDRA is located in Imperial County, in southeastern California approximately 25 miles west of the Colorado River and immediately north of the border between the United States and Mexico. This area is shown in Figure 1-1, Regional Vicinity. Access to the ISDRA is provided primarily by State Route (SR)-78 in the north, and Interstate (I)-8 in the south. The town of Brawley is located approximately 25 miles to the west, and the City of El Centro is located 40 miles southwest. The small settlement of Glamis is located within the ISDRA where SR-78 crosses the Union Pacific (formerly the Southern Pacific) Railroad. East of the ISDRA are the Cargo Muchacho Mountains and Chocolate Mountains. This area includes the Chocolate Mountain Aerial Gunnery Range, which is used by the U.S. military for target practice. The Salton Sea is located approximately 25 miles northwest of the ISDRA.

ISDRA Planning Area

The Planning Area for the evaluation conducted in this EIS encompasses the ISDRA and a one-mile area around the ISDRA that is actually managed in two other BLM plans: the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) and the Western and Eastern Colorado Desert Route of Travel Plan (WECO ROT). This one-mile area is not a part of the ISDRA, although it is included as a part of the planning area since BLM is required to analyze the off-site impacts. This one-mile area around the ISDRA is referred to as the "planning area" in this EIS and the associated RAMP.

The ISDRA comprises approximately 167,000 acres of land in California, covering an area more than 40 miles long and averaging 5 miles in width. The regional setting of the ISDRA is shown in Figure 1-1. Of this total acreage of ISDRA approximately 159,000 acres are managed by BLM, 7,000 acres are privately owned, and 900 acres are owned by the State of California. In addition the one-mile wide area around the ISDRA boundary within the planning includes approximately 48,300 acres of BLM managed land, approximately 1,800 acres of military managed land and approximately 9,100 of privately owned land. The dunes

are bordered on the west by the Coachella Canal, which delivers Colorado River water to the agricultural industry of the Imperial Valley to the north and west. A major route of the Union Pacific Railroad traverses the eastern edge of the ISDRA. SR-78 divides the northern third of the ISDRA from the southern portion. Interstate 8 traverses the southern portion of the ISDRA. Ogilby Road runs north south between SR-78 and I-8 along the southeast portion of the ISDRA. The ISDRA Plan Area is shown in Figure 1-2.

Topography

The dune system of the ISDRA is situated on a relatively flat plain that has an elevation of approximately 50 feet above sea level. On the west, the plain is referred to as the East Mesa because it is east of the Imperial Valley. On the east, the plain is called Pilot Knob Mesa.

The dunes reach heights of 300 feet above the plain and include classic examples of several different types of dunes. The sands are believed to originate largely from the eroded beaches of ancient Lake Cahuilla. The beaches themselves are remnants from times when the Colorado River temporarily was diverted from its southward course, and emptied into the Salton Trough, forming ancient Lake Cahuilla. Unlike some major dune systems that have formed next to a mountain range as a result of blocking topography, the Imperial Sand Dunes (also known as the Algodones Dunes) have formed primarily as a result of opposing seasonal winds. Winter winds come from the northwest, but often reverse to the southeast in summer. The stronger winter winds bring sands from the Salton Trough, and appear to be slowly pushing the dune system southeastward.

Largely as a result of the dominance of northwesterly winds, the east and west portions of the dune system differ substantially in character. West side sands are composed of material that is generally heavier and coarser than the lighter, finer sands carried further east and south by the prevailing winds. The coarse sands form the largest, tallest dunes, located in the western two-thirds of the dune system and constitute the “primary dunes.” The tallest dunes are found toward the center of the overall dune mass, in the eastern half of the primary dune area. East of the primary dunes are the “secondary dunes,” smaller dunes composed of finer sands and having more vegetation cover.

Climate

The ISDRA is located in a desert region of long, hot summers; mild winters; low rainfall; low relative humidity; and a high percent of sunny days. Summer daytime temperatures routinely exceed 105 degrees Fahrenheit. Annual precipitation fluctuates widely but averages just over 2 inches. Winter daytime highs are in the 60 degrees Fahrenheit to 70 degrees Fahrenheit range from December through March, and freezing temperatures are rare. Winter winds approach from the northwest. Summer winds are more variable, but often blow from the southeast.

[View figure 1-1](#)

Regional Vicinity Map - 87kb

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[View Figure 1-2](#)

ISDRA Plan Area - 105kb

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Visitor Use Patterns

Visitation to the ISDRA has increased dramatically since 1987. Data from 1987 Recreation Area Management Plan indicate that approximately 225,900 visits were made to the ISDRA in 1985. In comparison, visits to the ISDRA during the last 2 years have averaged more than 1.4 million visits per year. Visitor use patterns are discussed throughout Chapters 3 and 4 of this EIS as they pertain to the affected environment and environmental impacts.

Relationship To Policies, Plans, And Programs

Implementation of a revised management plan for public lands is subject to numerous laws and regulations, as well as a general requirement for consistency with pre-existing and applicable plans. The following sections summarize the most pertinent policies, plans, and programs that affect the planning processes at the ISDRA.

Federal Land Policy Management Act

The Federal Land Policy Management Act (P.L. 94-579, 90 Stat. 2743, 43 U.S.C. 1701 et seq.) provides the BLM with an operating mandate to emphasize the concepts of multiple use and sustained yield. Section 202(c) of FLPMA requires the BLM to “use and observe the principles of multiple use and sustained yield” in developing land use plans for public lands. Multiple use is a concept that directs public lands and their resource values be managed in a way that best meets the present and future needs of the people of the country. Multiple use involves “a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources...” (FLPMA, Section 103). Sustained yield is “the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use” (FLPMA, Section 103). The BLM is directed by FLPMA to manage sustained yield consistently with multiple use. The California Desert Conservation Area (see Section 1.3.2) was created through Section 601 of FLPMA.

California Desert Conservation Area Plan

The CDCA encompasses 25 million acres of land in Southern California that was designated by Congress in 1976 through FLPMA. The BLM directly administers about 10 million acres of the CDCA. With the designation of the CDCA, Congress directed the BLM to prepare and implement a comprehensive, long-range plan for the management, use, development, and protection of public lands within the CDCA. The 1980 CDCA Plan, as amended, is based on the concepts of multiple use, sustained yield, and maintenance of environmental quality. The CDCA Plan provides overall regional guidance for management of the public lands in CDCA, and establishes long-term goals for protection and use of the California Desert. The CDCA Plan establishes four multiple-use classes, multiple-use class guidelines, and plan elements for specific resources or activities such as motorized-vehicle access, recreation, and vegetation. These multiple-use classes (MUCs) are:

Class C (Controlled): About 4 million acres are Class C. These include 69 wilderness areas totaling 3,667,020 acres created by Congress with the October 1994 passage of the California Desert Protection Act (CDPA). These lands are to be preserved in a natural state; and access generally is limited to Non-Motorized, non-mechanized means (i.e., by foot or horseback).

Class L (Limited Use): About 4 million acres are Class L. These lands are managed to protect sensitive, natural, scenic, ecological, and cultural resource values. They provide for generally lower-intensity, carefully controlled multiple uses that do not significantly diminish resource values.

Class M (Moderate Use): About 1.5 million acres are Class M. These lands are managed in a controlled balance between higher-intensity use and protection. A wide variety of uses such as mining, livestock grazing, recreation, energy, and utility development are allowed. Any damage that permitted uses cause must be mitigated.

Class I (Intensive Use): About 500,000 acres are in Class I. These lands are managed for concentrated use to meet human needs. Reasonable protection is provided for sensitive natural values, and mitigation of impacts and rehabilitation of impacted areas will occur when possible.

The CDCA also includes a designation for Areas of Critical Environmental Concern (ACEC) to protect sensitive cultural and natural resources. The ISDRA, including the ISDRA Planning Area includes three ACECs. Plank Road, located in the southern portion of the ISDRA, is a historic cultural resource protected by an ACEC. In the planning area, East Mesa near Gordon's Well was designated an ACEC to protect habitat for the flat-tailed horned lizard (*Phrynosoma mcallii*), which was proposed for listing under the federal ESA as a "threatened" species and withdrawn. It currently is a BLM sensitive species. The Gold Basin-Rand Intaglios, located on the eastern edge of the ISDRA planning area, has unique prehistoric cultural resources values that are protected by an ACEC designation.

Since 1980, the CDCA Plan has been amended periodically to reflect changing conditions, including the acquisition of new knowledge relating to natural resources, and to update management strategies. Among these amendments is the 1987 ISDRA RAMP.

The RAMP could change certain parts of the CDCA Plan. Some of these changes include establishing new or modified areas as open, limited, or closed to OHV use and changing multiple use classes. Such changes require an amendment to the CDCA Plan in accordance with BLM planning regulations, Part 43, Code of Federal Regulations, Subpart 1610.3-2.

California Desert Protection Act

The California Desert Protection Act (CDPA) of 1994 (P.L. 103-433) created new wilderness areas on federal lands in the CDCA, transferred considerable acreage from BLM to National Park Service management, changed the status of several former monuments and preserves to national parks, and created several special designations for wildlife sanctuaries and areas of

critical environmental concern. The enactment of the CDPA formally established 26,202 acres in ISDRA as the North Algodones Dunes Wilderness area.

Prior to passage of the CDPA, BLM studied both the North Algodones and South Algodones Wilderness Study Areas of the ISDRA for possible wilderness designation under section 603 of the Federal Land Policy and Management Act. On January 3, 1989, Senator Alan Cranston proposed these Wilderness Study Areas, along with 69 other areas of the CDCA, to be designated as wilderness in Senate Bill 11 (S-11). The bill did not pass and was reintroduced by Senator Feinstein in 1993 as Senate Bill 21. Senator Feinstein, in a February 23, 1994, correspondence to her Senate colleagues asking for their support of the Bill, stated that she wanted to "... drop the entire 61,630 acre South Algodones Dunes from the bill to allow vehicle use."

On October 31, 1994, the CDPA was signed into law. The Act designated as wilderness the 26,202 acre North Algodones Dunes to be managed by BLM as a part of the National Wilderness Preservation System. No wilderness was designated for the South Algodones in the Act. Congress also indicated in the CDPA that the South Algodones Dunes Wilderness Study Area had been adequately studied for wilderness designation pursuant to Section 603 of FLPMA, and would be released from Wilderness Study Area status. Since conditions relating to the wilderness values of the South Algodones Dunes have not changed since the 1994 Act, BLM will not review the area under Section 201 or 202 of FLPMA.

1987 Recreation Area Management Plan and Environmental Assessment

The ISDRA was designated first by a management plan adopted in 1972. A Recreation Area Management Plan was adopted in 1987 and included management prescriptions for the following: recreation opportunities, safety/emergency services/visitor protection, resource protection, protection of wilderness suitability, public contact and interpretation, facility development, operations and maintenance, concessions and vendors, access easements and land acquisitions, and compatibility of land uses.

Because of budgetary considerations and environmental factors, portions of the 1987 RAMP have not been implemented. The 1987 Environmental Assessment (EA) for this management plan analyzed potential environmental consequences resulting from implementation of the plan, and three other alternative management programs for the ISDRA. The 1987 Recreation Area Management Plan is outdated and will be fully replaced by the new RAMP.

Interim Closures / Temporary Camping Closure

On March 16, 2000, the Center for Biological Diversity, and others (Center) filed for injunctive relief in U.S. District Court, Northern District of California (court) against the Bureau of Land Management (BLM) alleging that the BLM was in violation of Section 7 of the Endangered Species Act (ESA) by failing to enter into formal consultation with the U.S. Fish and Wildlife Service (FWS) on the effects of adoption of the California Desert Conservation Area Plan (CDCA Plan), as amended, upon threatened and endangered species. On August 25, 2000, the BLM acknowledged through a court stipulation that activities

authorized, permitted, or allowed under CDCA Plan may adversely affect threatened and endangered species, and that the BLM is required to consult with the FWS to insure that adoption and implementation of the CDCA Plan is not likely to jeopardize the continued existence of threatened and endangered species or to result in the destruction or adverse modification of critical habitat of listed species.

Although BLM has received biological opinions from the USFWS on selected activities, further consultation is required on the overall CDCA Plan to address the cumulative impacts of all the activities authorized by the CDCA Plan. In the absence of consultation on the entire CDCA Plan, the impacts of individual activities, when added together with the impacts of other activities in the California Desert, are not known. The BLM entered into negotiations with plaintiffs (Center for Biological Diversity, and others) for establishing interim actions to be taken to provide protection for endangered and threatened species pending completion of USFWS consultation on the CDCA Plan in total. Agreement on these interim actions avoided litigation of the plaintiffs' request for injunctive relief and the threat of an injunction prohibiting all activities authorized under the Plan. These interim agreements have allowed BLM to continue to authorize some level of activities throughout the ISDRA during the lengthy consultation process and to provide protection to listed species until the long term management can be determined through this EIS and associated RAMP.

By taking interim actions, as allowed under Part 43 of the Code of Federal Regulations (43 CFR Subpart 8364), the BLM contributes to the conservation of endangered and threatened species in accordance with Section 7(a)(1) of the federal ESA. The BLM also avoids making any irreversible or irretrievable commitment of resources that would foreclose any reasonable and prudent alternative measures that might be required as a result of the consultation on the CDCA Plan in accordance with Section 7(d) of the ESA.

On November 3, 2000, a legal stipulation respecting the Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*), designated as threatened under the ESA, became effective and five areas in the ISDRA were closed to motorized vehicle use. The closure boundaries are identified by sign posts and identified in the Amended Stipulation and Order Concerning Injunctive Relief for the Peirson's Milk-Vetch, Case No. C-00-0927 WHA-JCS. Four closure areas were named, while the fifth parcel was unnumbered, but was described as the Patton Valley Area. These areas are delineated in Figure 1-3, and total approximately 49,000 acres.

On October 18, 2001, the legal stipulation respecting the desert tortoise (*Gopherus agassizii*), also designated as threatened under the ESA, became effective; and a temporary camping closure on approximately 25,600 acres of desert tortoise habitat was approved. The camping closure is located east of Glamis and the Union Pacific Railroad (see Figure 1-3). As with other ISDRA management directions, the camping restriction does not apply to private lands within the closure area, nor does it restrict the use of motorized vehicles on existing routes of travel otherwise allowed by the CDCA Plan and 1987 RAMP.

View Figure 1-3

Interim Closure Areas - 86Kb

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Northern and Eastern Colorado Desert Coordinated Management Plan

The Northern and Eastern Colorado (NECO) Desert Coordinated Management Plan area is adjacent to the ISDRA but does not overlap the ISDRA. It is the management plan for the eastern side of the planning area. The NECO Plan addresses several issues including: (1) recovery of the desert tortoise, (2) conservation of the variety of other species and habitats, and (3) public lands access and uses. The NECO Plan provides a wide range of actions that relate primarily to land use allocations and on-the-ground actions. The BLM will coordinate management decisions so that the management of the ISDRA areas that are adjacent to the NECO areas is consistent, whenever practical.

Western Colorado Desert Route of Travel Plan

The Western Colorado Desert Route of Travel (WECO ROT) Plan area is adjacent to the ISDRA but does not overlap the ISDRA. (However, most of the ISDRA is within the area referred to by BLM as the Western Colorado Desert area.) WECO ROT is the management plan for the western side of the planning area. The WECO ROT Plan addresses several issues including: (1) public lands access and uses, (2) recovery of the flat-tailed horned lizard, (3) conservation of the variety of other species and habitats, and sensitive cultural resources. The WECO ROT Plan designates routes of travel and camping in Imperial County. The BLM will coordinate management decisions so that the management of the ISDRA areas that are adjacent to the WECO ROT areas is consistent, whenever practical.

Other Plans and Programs

The following plans and programs are directly or indirectly applicable to the planning process at ISDRA. An updated recreation area management plan will take these plans and programs into account, and incorporate appropriate elements:

Wilderness Implementation Strategy (WIS), August 31, 1999. This strategy will continue to be used to manage the North Algodones Wilderness Area of the ISDRA.

National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands (January 2001).

State Implementation Plan For PM₁₀ in the Imperial Valley, Executive Summary, Final (1993). The ISDRA falls within the Salton Sea Air Basin, which is classified as a non-attainment area for particulate matter with a diameter less than 10 micrometers (PM₁₀) based on federal Clean Air Act standards. Planning efforts at ISDRA will be consistent with the State of California Air Quality Implementation Plan.

County of Imperial General Plan (1996): This plan seeks to direct growth, particularly urban development, to suitable areas in Imperial County.

California Desert District Business Plan Recreation Fee Demonstration Project: This plan will be utilized in the development of fees.

Algodones Dunes Habitat Management Plan (1987): An updated Recreation Area Management Plan will amend this document and will take precedence in management decisions.

Wildlife Habitat Protection Program: The monitoring program in the RAMP would supplement this program.

Imperial County Emergency Medical Services ALS/BLS Treatment Protocols, as Amended: The BLM provides basic life support in the ISDRA following this plan.

Interpretive Plan for the El Centro Resource Area (1991): This document provides a framework for interpretative services and development on public lands in the El Centro Resource Area. The ISDRA interpretative services will be developed in accordance with this plan.

Law Enforcement Special Evaluation, Law Enforcement in the California Desert (2000) El Centro Law Enforcement Plan. This plan establishes general guidelines for law enforcement for the El Centro Field Office.

Mineral Resources of the North Algodones Dunes Wilderness Study Area (1984).

Plank Road Areas of Critical Environmental Concern Management Plan (1985).

Desert Tortoise Recovery Plan, U. S. Fish and Wildlife Service. The ISDRA is within the range of the desert tortoise but is not within critical habitat or any existing or proposed reserve area.

Flat-Tailed Horned Lizard Range-wide Management Strategy (1997).

Volunteer Opportunities with the Bureau of Land Management in the El Centro Resource Area.

Endangered Species Act

The ESA provides for the federal protection of threatened plants, insects, fish, and wildlife. The USFWS administers the ESA on behalf of the United States. The major components of the ESA include:

- Provisions for the listing of threatened and endangered species

- The requirement for consultation with USFWS on federal projects

- Prohibitions against the taking of listed species

Provisions for permits to allow incidental taking of threatened and endangered species

As noted previously, the RAMP was reviewed by USFWS in accordance with Section 7 of the ESA. Under Section 7, the BLM is required to consult with the USFWS to ensure that any actions authorized, funded, or carried out are not likely to “jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modifications of lands determined by USFWS to be ‘critical habitat’.”

Planning Issues

Issues, Concerns, and Opportunities

A preliminary step in developing the management program for the current RAMP involved identifying relevant issues, concerns, and opportunities. These issues, concerns, and opportunities were identified with assistance from the public. The public helped to identify what long-term levels of recreational use, services, goods, and environmental conditions are expected from the ISDRA. The issues, concerns, and opportunities help to determine the extent that the 1987 RAMP would need to be revised. The issues, concerns, and opportunities provide information to be considered in developing alternatives for future management of the area.

The 1987 RAMP was used as a reference point to begin identifying issues, concerns, and opportunities. Many of the issues identified during the 1987 planning process remain relevant. Additional issues, concerns, and opportunities were identified through a series of seven public meetings conducted during 2000 and a project comment site on the BLM’s INTERNET website. Public participation was encouraged through news releases, a publication in the *Federal Register*, and a mailing of approximately 2,000 newsletters to individuals, groups, and organizations. To further this process, an interdisciplinary working group also was developed from several interested public organizations. The working group consisted of four members representing the following: OHV/Dune Groups, Environmental Groups, Imperial County, and BLM.

Using written and verbal comments, the working group identified a series of public issues, management concerns, and resource opportunities. Issues, concerns, and opportunities dealing specifically with the ISDRA that had been identified at previous public meetings, but had been deferred, also were included for consideration. The BLM Field Manager reviewed all issues, concerns, and opportunities. The issues, concerns, and opportunities were also validated through an “Issues Newsletter” mailed to approximately 600 interested individuals and organizations on the BLM’s mailing list. The newsletter included a response form to add or further refine issues.

This effort was supplemented in August and September 2001 by another newsletter mailing to approximately 2,000 interested individuals and organizations seeking public input, and

through three additional public meetings held in El Centro and San Diego, California, and Phoenix, Arizona.

Only issues, concerns, and opportunities meeting certain criteria were included in the planning process. To be included, an issue, concern, and opportunity had to be:

- Consistent with federal statute and within the jurisdiction of the BLM
- A land management or administrative concern
- Able to be resolved during the planning process
- Producing of a significant long-term effect through its resolution
- Related to the ISDRA

Issues, Concerns And Opportunities

The following issues, concerns, and opportunities captured as a series of questions, were carried forward in the present RAMP management process:

1. *What level or levels of recreation setting will be provided at the ISDRA?*

The ISDRA can provide a wide variety of outdoor settings. Currently the majority of the area is an undeveloped setting where recreational enthusiasts can engage in activities that are not dependent on facilities and experience a moderate level of self-reliance and risk. Natural resources in these areas have not been modified to accommodate human use. About 25% of the ISDRA is in a more developed setting where many of the activities are based at or near facilities. Natural resources in these areas have been significantly modified to accommodate human use. There are currently no guidelines to direct the development, or lack of development, of any of the areas associated with the ISDRA. Public opinion varies as to what range of settings should be accommodated at the ISDRA.

2. *How will OHV recreation be managed in relation to resources and other recreational activities, including safety?*

Federal regulations at Title 43 CFR Part 8340.0-2 requires BLM to protect the resources of the public lands, promote the safety of all users of those lands, and minimize conflicts among the various users of those lands. Both advocates and opponents of OHV use are concerned about how to manage this activity to minimize impacts on other resources and to be compatible with other recreational activities. The concern focuses around the issues of public health and safety resulting from crowding in some OHV areas, saving camp spots, dumping of gray water and litter. There are also concerns with quiet times, camp area speed limits and the general unruliness of some visitors. Finally, there is a more general concern about the potential adverse affects of OHVs on plants, wildlife, geologic resources and other elements of the ISDRA environment.

3. *How much facility development and access is appropriate for the ISDRA?*

This issue addresses the suitability of the area to accommodate additional camp pads, contact stations, roads, etc. Chapters III and IV provide a complete description of the facility development anticipated in the next ten years.

4. *How often, where and what should vendors/concessionaires be allowed to operate on public land in the ISDRA to best serve the needs of the public?*

This issue addresses the vendor program in the ISDRA. A revised RAMP could determine what food, goods, or services should be provided by vendors in order to enhance OHV use and camping in ISDRA. A permitting program could provide structure, including time limitations for the vending program. The RAMP could designate geographical areas where vending could be permitted.

5. *How much impact are the tour buses having on the facilities at the ISDRA and should there be compensation for that use?*

There has been a notable increase in visitation to ISDRA by commercial tour buses since the 1987 RAMP was completed. Since the reconstruction of the Osborne Overlook access road and the installation of the pit toilets at the Buttercup Campground, several commercial tour bus companies regularly stop and utilize the facilities. Identification of these companies is difficult due to staffing levels and uncontrolled access to the recreation area. Both areas are BLM managed and maintained roads with commercial vehicle weight limits. It is undetermined if the tour bus traffic significantly increases the level of maintenance and repairs required for the roads and restrooms. It is also undetermined if there are any recreational or resource conflicts.

Federal regulations, Title 43 CFR Parts 2930 and 8370, address issuance of permits for recreation on public lands. These regulations allow the BLM to issue permits in order to manage recreational use, reduce recreational and resource conflicts, and to receive a return for commercial uses of public lands.

6. *How will the BLM conserve the unique natural resources of the ISDRA in an area managed for OHV use?*

The Endangered Species Act of 1973 and the environmental policies of the BLM provide for protection of federal or state listed species on public lands in California. BLM consults with the U.S. Fish and Wildlife Service and discussed concerns with the California Department of Fish and Game on actions that may affect listed species, such as this management plan. The listed and sensitive species identified in the area are described below.

The Algodones Dunes are home to five special status plant species: the Peirson's milk-vetch, which is listed as threatened under the Endangered Species Act and endangered under California Endangered Species Act, the Algodones Dunes sunflower which is listed as endangered under California Endangered Species Act, Wiggins croton which is listed as rare by the State of California, and sandfood and giant Spanish needle which are considered rare and endangered, respectively, by the California Native Plant Society.

One former federal candidate species and BLM sensitive lizard species, the flat-tailed horned lizard, occurs in relatively low densities at the ISDRA. The Colorado Desert fringe-toed lizard, a former federal candidate species and BLM sensitive species, is abundant at the ISDRA, especially in active dunes and psammophytic scrub. Additionally, the federally and state listed threatened desert tortoise probably occurs in the microphyll woodlands on the east side of the ISDRA, as does the Gila woodpecker, a state listed endangered species. Additionally, the BLM sensitive Couch's spadefoot toad probably occurs in the microphyll woodlands on the east side of the ISDRA. The toad is also a state species of concern.

The creosote bush scrub and microphyll woodland habitats adjacent to the ISDRA probably contain the BLM sensitive species, the burrowing owl, which is also a state species of concern. The loggerhead shrike, leConte's thrasher and Yuma mountain lion, all species of concern, also occur at the ISDRA. Additionally, three poorly known beetle species, all BLM sensitive species, occur at the ISDRA: Andrew's dune scarab beetle, Hardy's dune beetle and Carlson's dune beetle.

A revised RAMP will address conservation of these species while maintaining recreational use of the ISDRA.

7. *What level of education and resource interpretation should be provided at the ISDRA?*

This issue addresses the type of interpretive materials (signs, brochures, etc) that should be available to the public to better educate and communicate to them on the critical resources and regulations of the ISDRA.

8. *How will education, law enforcement, and other techniques be used to ensure compliance with laws and regulations at the ISDRA?*

Federal regulations, Title 43 CFR Part 8340.0-2, directs BLM to protect the resources of the public lands, to promote the safety of all users of those lands, and to minimize conflicts among the various users of those lands.

An ever-increasing visitor population during the high use season has created larger crowds in the camping and riding areas. Along with this there seems to be an increase in irresponsible visitors who act without regard to the consequences to themselves or others. The need to develop an educational program to raise the level of awareness of the rules, regulations, and safety concerns was identified by the public. The need to develop better ways of disseminating information to visitors through the use of the INTERNET and partnerships with the various user groups and businesses that focus on the ISDRA was also identified.

This issue addresses the identification of options available to aid in increasing lawful behavior.

9. *What is considered to be the Visitor Supply at the ISDRA? Is it being exceeded and if so, what actions should be taken?*

This issue addresses the number of visitors that are coming to the ISDRA. The visitor supply could be determined by use of the Recreation Opportunity Spectrum. The Recreation Opportunity Spectrum is a system that provides guidelines to manage recreational opportunities, available facilities and visitor supply. This tool could allow BLM to manage the ISDRA based on the type of recreation experience that is desired for a specific area

10. *How much motorized trespass is occurring in the North Algodones Dunes Wilderness Area, what impacts are occurring, and how can it be eliminated?*

Motorized vehicles are used to illegally enter the wilderness. Although land use monitoring is occurring, the total frequency of trespass is not known. This issue will look at how law enforcement and education can reduce the level of trespass.

11. *What management actions should be utilized for legal motorized access afforded the Border Patrol, California Department of Fish and Game and other law enforcement agencies to the North Algodones Dunes Wilderness?*

The enabling legislation that designated the North Algodones Dunes Wilderness Area was the CDPA. This Act allows for continued motorized use by the California Department of Fish and Game to monitor and maintain their wildlife guzzlers inside the wilderness area. The CDPA also allows U.S. Border Patrol to continue their operations inside the wilderness area. Although these uses are allowed, they have an impact on the wilderness values of solitude and naturalness. This RAMP will discuss at what levels these uses would be allowed, while accomplishing the goals of all agencies involved.

12. *What is the future for the Fee Demo program?*

The Fee Demo Program began in the ISDRA on January 1, 1999 as authorized by Congress through the BLM's appropriation process. There has been controversy over the program since its inception. Responding to public criticism, the BLM entered into a Memorandum of Understanding with the California Department of Parks and Recreation Off-Highway Motor Vehicle Recreation Division, and the California Off-Highway Motor Vehicle Recreation Commission. This Memorandum of Understanding expired on September 30, 2000. In support of this Memorandum of Understanding a technical review team (TRT) was created to provide input about how the collected funds should be spent in the ISDRA.

The 2003 fiscal year Interior appropriations bill extended the Fee Demo test program through 2004. This is the fifth extension of the original expiration date. It is unknown at this time how many more times it will be extended or if it will become permanent legislation. Currently, the future of the Fee Demo Program across the U.S., including the ISDRA, depends upon the continued re-authorization of this legislation by Congress.

13. *How will priorities be set with potential budget reductions from “green sticker” and allocated dollars?*

In past years, partnerships with the State of California Off-Highway Vehicle Commission and Division have provided a substantial amount of financial support to the ISDRA. Current regulations are making those dollars increasingly more difficult to obtain, causing concern for future programs at the ISDRA. This issue would address continued financing solutions for those programs and projects that are planned.

14. *How will potential/partial closure of the ISDRA to recreational use affect OHV users, vendors and the communities who base their livelihood and income on OHV activities?*

This issue will explore methods to balance the recreational use of the ISDRA and the potential for economic benefit and growth.

15. *At what level are noxious weeds occurring within the ISDRA planning area? What measures can be taken to reduce or eliminate them?*

The area has scattered infestations of salt cedar (*Tamarix ramosissima*), leafless tamarisk (*Tamarix aphylla*), Sahara mustard (*Brassica tournefortii*), cheat grass (*Bromus tectorum*), and extensive areas of schismus (*Schismus barbatus*). Infestations of salt cedar occur in the pockets of the eastern dunes where water collects after rainstorms. Large leafless tamarisks are present north of Highway 78 near Glamis. The east side of the wilderness area contains very heavy infestations of Sahara mustard in microphyll woodland, desert dry wash woodland and creosote bush scrub habitats. The mustard has also been sighted near the Buttercup off-ramp between the freeway and the frontage road.

Weeds can be eliminated with herbicide applications on a limited scale. Larger scale removal is not possible due to the large size of the ISDRA and funding limitations. In the future exotic plant removals would focus on areas of high biological value with severe infestations. Eradicating exotic plants over the majority of the ISDRA is not a feasible goal. In the future, biological controls may become available for some of these species for control on a wide scale. However, at this time these methods are not available.

16. *How can air quality standards in the ISDRA be met?*

The Glamis area has intermittently poor air quality resulting from natural conditions, smog and agricultural burning in the nearby Imperial and Mexicali Valleys. The ISDRA Plan Area is located within Imperial County, which is a non-attainment area for ozone and PM₁₀. This situation is exacerbated on holiday weekends in the fall and winter. At these times, large numbers of OHV and motor homes arrive in the Glamis area, creating airborne dust particles and hydrocarbon emissions. This issue addresses methods to meet air quality standards.

17. *Can the loss of OHV opportunities throughout the CDCA plan area be mitigated?*

Since the inception of the CDCA Plan in 1980, the demand for areas open to OHV recreational use has increased. At the same time, other management objectives on BLM-managed lands have constrained access to some of the areas used historically for OHV recreation. (For example, OHV use areas have been closed to protect sensitive biological resources. This issue concerns how the BLM can provide OHV and camping opportunities to replace lost opportunities at ISDRA and other areas managed by the CDCA plan.

Desired Future Conditions And Management Goals

In addition to the identification of issues identified by the public, the BLM's planning process included a RAMP Working Group, comprising representatives from the environmental and OHV communities, the BLM, and Imperial County staff. This Working Group developed a list of desired future conditions to assist planners in identifying goals and objectives for the ISDRA during the next 10 to 15 years. The desired future conditions also provide the basis for comparing the relative merits of each alternative (see Chapter 2 of this EIS). The following summarizes the goals and management objectives that guide the BLM in the development of the alternatives and the identification of Alternative 2 as the preferred alternative:

- Goal 1 - Provide a variety of sustainable OHV and other recreational activities.
- Goal 2 - Maintain or improve conditions of the special-status species and other unique natural and cultural resources.
- Goal 3 - Create an environment to promote the health and safety of visitors, employees, and nearby residents by working with local, state, and federal agencies and interest groups.

Certain goals and objectives in managing the ISDRA are provided through FLPMA and the CDCA Plan. Since its designation, the ISDRA has been managed according to mandates set forth in both the 1980 CDCA and 1976 FLPMA. Among FLPMA's requirements is the following:

“the use of all California desert resources can and should be provided for in a multiple use and sustained yield management plan to conserve these resources for future generations, and to provide present and future use and enjoyment, particularly outdoor recreation uses, including the use, where appropriate, of off-road recreational vehicles...” [Title VI. SC1781. Sec. 601 (a)(4)].

Authorizing Actions

Prior to implementation of the Preferred Alternative, a Record of Decision (ROD) must be issued in accordance with NEPA. A ROD provides a written record explaining why the lead agency (BLM) has taken a particular course of action. Issuance of the ROD would allow the BLM to move forward in amending the CDCA Plan with an updated recreation area

management plan. The amendment of the CDCA Plan would then allow for implementation of the management actions described in the recreation area management plan.

Other federal agencies with jurisdiction at the ISDRA could also be required to approve the Preferred Alternative. As noted above in Section 1.3.8, approval is subject to Section 7 of the ESA. Therefore, implementation of a revised recreation management plan is contingent upon the issuance of a “No Jeopardy” opinion from USFWS. None of the action alternatives is anticipated to affect any waters of the United States under the jurisdiction of the United States Army Corps of Engineers (USACE) and, therefore, would not be subject to Section 404 or 401 of the Clean Water Act.

Because no discretionary actions are currently required at the state or local level, implementing the Preferred Alternative would not require review under the California Environmental Quality Act (CEQA). Future management actions associated with implementation of a revised RAMP, however, could require approval from state and/or local agencies. If it is determined that these actions are subject to CEQA, appropriate environmental documentation would be prepared in accordance with the CEQA Guidelines.

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CHAPTER 2

ALTERNATIVES FOR ISDRA MANAGEMENT

Introduction

This chapter presents the NEPA alternatives (including the no action alternative, the preferred action, two additional action alternatives, and the alternatives considered but not carried forward) that are discussed in this EIS. The alternatives were developed in response to the Issues, Concerns, and Opportunities identified through the public scoping process that was discussed in the previous chapter.

NEPA requirements (40 CFR 1502.14) direct federal agencies to:

Consider a range of alternatives that could accomplish the lead agency objectives (i.e., Purpose and Need) and present the alternatives in comparative form to define the issues and provide a clear basis for decision makers and the public to choose among options.

Explore rigorously and evaluate objectively a reasonable range of alternatives. If alternatives have been eliminated from detailed study, the EIS must briefly discuss the reasons they were eliminated. The range of alternatives is project-specific, depending on the nature of the proposal and the facts and circumstances of the project.

Analyze each alternative to a degree that is substantially similar to the analysis afforded the proposed project.

Identify the Environmentally Preferable Alternative from the range of alternatives considered. This alternative is typically the scenario that best promotes the environmental policy expressed in NEPA.

Include a No Action Alternative. NEPA requires that a No Action Alternative be developed and evaluated to allow decision makers to compare the impact of approving the Proposed Action with the impacts of not approving the Proposed Action.

The alternatives were developed by the BLM on the basis of, and in response to, substantive public input on the existing environment, existing uses, desired future uses, and desired environmental conditions of the ISDRA. On the basis of this input and in consideration of their management obligations under FLPMA and other statutory and policy guidance, the

BLM developed a series of desired future conditions and management goals that are intended to apply to a revised RAMP. These conditions and goals also apply to all the alternatives considered in this EIS. The goals established by the BLM in the purpose and need for this project are consistent with the overall management direction provided to the BLM by the various statutes, policies, and guidelines. The alternatives considered in this EIS and subjected to analysis are:

Alternative 1: No Action

The Preferred Alternative: Alternative 2: Recreation and Natural/Cultural Resource Protection Alternative

Alternative 3: Natural and Cultural Resource Protection Alternative

Alternative 4: Motorized Recreation Opportunities Alternative

The alternatives analyzed in this EIS, including the No Action Alternative and the alternatives considered but eliminated from further analysis are presented later in this chapter. The BLM's Preferred Alternative is Alternative 2.

All the alternatives (with the exception of Alternative 1, No Action) include geographically delineated management areas and proposed Recreation Opportunity Spectrum (ROS) classifications. The ROS is a system used by many federal and state land management agencies to categorize outdoor recreation settings. There are six recreation settings within the ROS system, and each setting provides a different set of recreation opportunities and experiences. ROS settings range from highly modified environments with numerous contacts with other people to undisturbed natural environments with little or no contact with others. The ROS classifications and their characteristics are:

- Urban – Substantially urbanized environment characterizes this setting. Facilities are designed and constructed for intensified motor use, including forms of mass transportation facilities. Vegetative cover is often exotic and manicured. Sites and sounds from humans predominate site and interaction between users is high. Overnight camp areas with 0.25 acres per camping party define visitor supply.
- Rural – A substantially modified natural environment characterizes this setting. Resources are modified to enhance specific recreation activities. Sights and sounds of humans are readily evident and interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Facilities for intensified motorized use and parking are available. Overnight campsites of 0.25 in the structured pad areas to 0.5 acres in the dispersed areas per camping party largely define visitor supply of rural ROS settings.
- Roaded Natural – Predominantly natural appearing environments characterize this setting. Facilities are designed and constructed to accommodate conventional

motorized use. Moderate sights and sounds of humans exist and interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modification is evident, but in harmony with the natural environment. Overnight, dispersed camp areas with 3 acres per camping party define visitor supply.

- Semi-Primitive Motorized – A semi-primitive motorized area is predominantly natural or natural-appearing environment of moderate to large size (generally greater than 2,500 acres). The resource integrity of the area is very important to the visitor experience. Interaction between users is low, but there is often evidence of other users. The area is managed with minimal and subtle on-site controls and restrictions. 1 overnight camping party for every 10 acres defines visitor supply.
- Semi-Primitive Non-Motorized – A predominantly natural or natural-appearing environment of moderate to large size (generally larger than 2,500 acres) characterizes this setting. Interaction between users is low, but there is often evidence of other users. The area is managed with minimal and subtle on-site controls and restrictions. Motorized use is not permitted. (Note: The configuration, size, adjacent highways, railroad and view shed is consistent with semi-primitive ROS class, however primitive recreation opportunities are available in some specific locations). In semi-primitive non-motorized areas that allow overnight camping, visitor supply is defined as 1,280 acres for every overnight camping party.

The goals and management actions, utilizing the ROS classifications, will provide direction for land and resource management in the ISDRA.

To manage the desert resources, the CDCA Plan divided all public land within the plan boundaries, which includes the ISDRA, into Multiple-Use Classes that stipulate whether different areas could be used for motorized recreation, motorized access, and the intensity of that use. Because these classes are legally binding, unless amended through the public process, the BLM must manage the ISDRA according to the class prescriptions. This EIS proposes changes in the Multiple-Use Classes for the three action alternatives; the multiple-use classes for the no action alternative remains the same. All the alternatives (with the exception of Alternative 1, No Action) include geographically delineated management areas and proposed Recreation Opportunity Spectrum (ROS) classifications. The ROS classification system can be used to determine the Multiple Use Class. The ROS classifications and their characteristics are:

Multiple-Use Class I – “Intensive Use”: Its purpose is to provide for concentrated use of land and resources to meet human needs. Reasonable protection will be provided for sensitive natural and cultural values. Mitigation of impacts on resources will be implemented, and rehabilitation of impacted areas will occur, if possible. Recreation activities involving high densities are permitted. Campgrounds and other facilities are permitted. Lands assigned to Class I incorporate OHV areas within the ISDRA designated as “open.” Management areas that are designated as urban or rural are under this Multiple-Use Class.

Multiple-Use Class M – “Moderate Use”: Based upon a controlled balance between higher intensity use and protection of public lands. This class provides for a wide variety of present and future uses such as mining, livestock grazing, recreation, energy, and utility development. This class is also designed to conserve desert resources and to mitigate damage to those resources that permitted uses may cause. Recreational use is appropriate at moderate to high densities, and developed recreation sites are permitted. Lands assigned to Class M incorporate OHV areas within the ISDRA designated as “open.” Identifying individual vehicle routes within sand dunes is impractical; therefore, areas assigned Class M are designated as “open” whereas they typically would be designated as “limited” by this multiple use class. Management areas that are designated as roaded natural are under this Multiple-Use Class.

Multiple-Use Class L – “Limited Use”: This class protects sensitive, natural, scenic, ecological, and cultural resource values. These lands are managed to provide for generally lower intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished. This class is suitable for recreation that generally involves low- to moderate-user densities. Developed campgrounds or sites involving concentrated recreational use generally are not allowed in this class. Lands assigned to Class L incorporate OHV areas within the ISDRA designated as “open.” Identifying individual vehicle routes within sand dunes is impractical; therefore, areas assigned Class L are designated as “open” whereas they typically would be designated as “limited” by this multiple use class. Management areas that are designated as semi private motorized are under this Multiple-Use Class.

Multiple-Use Class C – “Controlled Use”: There are two purposes to this class: it shows areas that are being “preliminarily recommended” as suitable for wilderness designation by Congress and it shows those areas formally designated as wilderness by Congress. The North Algodones Dunes Wilderness was designated wilderness in the CDCA Plan through the California Desert Protection Act of 1994, and is designated Class C. Management areas that are designated as semi private non-motorized are under this Multiple-Use Class.

The goals and management actions, utilizing the Multiple-Use Classifications, will provide direction for land and resource management in the ISDRA. A change in the multiple use class is a plan amendment.

Alternatives Analyzed In The EIS

Under Alternative 1 (No Action), neither the designation of management areas nor the assignment of ROS classes would occur. Under the action alternatives assessed in this EIS (Alternatives 2, 3, and 4), the management areas would be applied and the boundaries of the management areas would be the same for all the action alternatives. The ROS classifications are the key features that would vary among the action alternatives to provide variations in the proposed level and management focus of visitor use. The eight management areas in the ISDRA and a one-mile area around the ISDRA comprise the ISDRA Planning Area evaluated in this EIS.

The one-mile area around the ISDRA is actually managed in two other BLM plans: the Northern and Eastern Colorado Desert Coordinated Management Plan (NECO) and the Western and Eastern Colorado Desert Route of Travel Plan (WECO ROT). It is not a part of the ISDRA. These plans have designated the routes that may be used in this one-mile area that is around the ISDRA. These plans also require that all travel in this one-mile area must be on a route that is designated as open or limited use. The only action that the ISDRA EIS will propose for the one-mile wide area managed by NECO and WECO ROT is a no camping consideration. The ISDRA EIS record of decision will determine the camping decision for this area. This one-mile area around the ISDRA will be referred to as the “Planning Area” throughout this EIS and the RAMP.

Alternative 1: No Action Alternative

Under Alternative 1, the ISDRA would continue to be managed according to the existing and approved management plan and policies (e.g., the 1987 RAMP). In addition, the No Action Alternative would include compliance with policies and management measures instituted since the 1987 RAMP was first implemented, including the designation of the North Algodones Dunes Wilderness in 1994 and the release of Wilderness Study Area 362 from further suitability studies. Alternative 1 does not include any of the actions that were proposed in the 1987 RAMP and were not implemented prior to 2002 because management must also accommodate the findings of more recent resource inventories at the ISDRA, as well as updated regulations that could constrain full implementation (e.g., new facilities would not be allowed in the wilderness area). Under this alternative, the ROS classifications and management areas that apply to the action alternatives will not be created. See Figure 2-1. Also, Alternative 1 does not include the interim OHV closure areas or the temporary camping closure because these are temporary measures and not part of the management policy for the ISDRA. Vendor locations are shown in Figure 2-2.

This alternative continues the current management of the Planning Area, without considering the recent and proposed plan amendments for this area. The CDCA Plan would not be amended under this alternative, and no adaptive management program would be implemented. Multiple use classes and vehicle use classes would remain the same as in the 1987 RAMP.

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[View Figure 2-1](#)

Alternative 1-no action - 62KB

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[View Figure 2-2](#)

Map of vendor locations for Alternative 1 no action - 46Kb

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Actions Common to the Action Alternatives (Alternatives 2 -4)

This section summarizes the overall management actions proposed by the BLM that would pertain to all the action alternatives (Alternatives 2, 3, and 4) analyzed in this EIS. Eight management areas would be created within the ISDRA and one area of consideration (the Planning Area) external to the ISDRA boundary. These management areas, listed below, would be the same geographical areas under each of the three action alternatives. Each management area would be assigned a specific ROS classification and multiple use classification that would guide permitted activities, level of development, type of recreational experience, and assist the BLM to establish planning goals for visitor use in the different management areas. The ROS classifications vary among the alternatives. These management areas would be:

- Mammoth Wash Management Area
- North Algodones Dunes Wilderness Management Area
- Gecko Management Area
- Glamis Management Area
- Adaptive Management Area
- Ogilby Management Area
- Dune Buggy Flats Management Area
- Buttercup Management Area

The area of consideration is the:

Planning Area

The Planning Area will not be assigned a ROS classification, nor will its activities be managed under the ISDRA Management Plan. The Planning Area is not a part of the ISDRA: it never was a part of the ISDRA. It is an area that surrounds the ISDRA and is used in planning documents to analyze off-site effects on the surrounding area.

A summary of the management actions that pertain to all the action alternatives (for all the management areas) is presented in the table below.

MANAGEMENT ACTIONS (APPLICABLE TO ALL MANAGEMENT AREAS FOR ALTERNATIVES 2, 3, AND 4)

Recreation	Maintain and manage ISDRA as a unique locale providing urban, rural, roaded-natural, or semi-primitive OHV recreation opportunities in the desert Southwest. Compensate recreation area loss by increasing recreation opportunities in other areas within the planning boundary.
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MANAGEMENT ACTIONS
(APPLICABLE TO ALL MANAGEMENT AREAS FOR ALTERNATIVES 2, 3, AND 4)

Public Outreach	Develop a public relations program on cultural and natural resources; safety; hazardous and solid wastes; interpretive displays and brochures.
Biological Resources	<p>Manage using principles of adaptive management. Adaptive management is a process of implementing policy decisions as scientifically driven management experiments that test predictions and assumptions in management plans, using the resulting information to improve the plans.</p> <p>Reduce impacts to natural resource areas that are outside of ISDRA through posting of designated routes, education, and enforcement.</p> <p>Utilize existing laws to protect special species, as needed. 43 CFR 8341.2 states that where the authorized officer determines that off-road vehicles are causing or will cause considerable adverse effects upon soil vegetation, wildlife, wildlife habitat, cultural resources, historical resources, threatened or endangered species, wilderness suitability, other authorized uses, or other resources, the authorized officer shall immediately close the area affected to the type(s) of vehicle causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent reoccurrence.</p>
Air Quality	Implement dust control measures on wash roads and at the entrance to Dune Buggy Flats.
Transportation Traffic	Grade roads, implement fee entry and construct traffic control
Public Safety	<p>Create a law enforcement cooperative team.</p> <p>Increase permanent staff and holiday staff to address the increases in visitor use of major holidays.</p> <p>Continue a Zero Tolerance Policy toward assaults, alcohol and drug abuse and other serious violations.</p> <p>Include the ability to ban alcohol outside camping areas if other law enforcement tools are unable to adequately promote a safe environment. Visitor use and incident data will be monitored and will be used to evaluate the need for this tool and to develop</p>

MANAGEMENT ACTIONS
(APPLICABLE TO ALL MANAGEMENT AREAS FOR ALTERNATIVES 2, 3, AND 4)

	<p>the criteria for its use.</p> <p>Establish a law enforcement tool to allow closures and restrictions at Competition Hill north and south, Oldsmobile Hill, Test Hill, Patton Valley, the sand drags and other areas as needed to encourage law and order. Visitor use and incident data will be monitored and will be used to evaluate the need for this tool and to develop the criteria for its use.</p> <p>The sand drags will receive additional law enforcement attention. Current rules such as those relating to reckless driving, speed limits near other users, and driving under the influence of alcohol, will be aggressively used to promote a safer environment.</p> <p>Post speed limits.</p> <p>Develop and maintain radio communication system.</p> <p>Upgrade facilities to include law enforcement, medical, visitor services and dispatching duties from Cahuilla Ranger Station.</p>
Visitor Use	<p>Establish ROS classifications and visitor use targets for management areas.</p> <p>Manage ISDRA use if visitation exceeds proposed ROS classifications for a specific number of days by following certain processes.</p>
Social and Economics	<p>Add free use days from the Saturday of the first full weekend in December to the following Friday to accommodate visitors that may find that the fees present an economic hardship. The free days are free to all users.</p>
Land Use	<p>Establish management areas with specific ROS classifications to meet planning objectives.</p> <p>Provide coordination with adjacent land use plans to control impacts to these areas from ISDRA users.</p>
Commercial	<p>Vending would continue to be 7 days a week at long term vending areas. (Specific locations, if any, change based on the alternative.)</p> <p>Vending would be permitted from October 1 through May 31 from</p>

MANAGEMENT ACTIONS
(APPLICABLE TO ALL MANAGEMENT AREAS FOR ALTERNATIVES 2, 3, AND 4)

	<p>noon Thursday through noon Monday at the short term vending areas. (Specific locations change based on the alternative.) All vending materials, supplies and related vending material would be required to be physically removed from the ISDRA from Monday at noon to Thursday at noon.</p> <p>Do not routinely allow non-recreational commercial activities (such as filming) during the high use holiday periods.</p>
Access and Facilities Development	<p>Develop or retrofit facilities, in the appropriate ROS classes, to accommodate visitation and meet all disability regulations and standards.</p> <p>Ensure that little or no development occurs in primitive areas.</p> <p>Construct disability and tortoise compliant trash collection facilities and loading docks.</p>
Fiscal	<p>Collect fees in all areas based on demand and cost recovery.</p> <p>Move toward the ISDRA becoming more independent from appropriations and grants.</p> <p>Review price structure every 2 years.</p> <p>Update fee business plan within 2 years of the record of decision for the EIS being signed.</p>
Plan Amendment	<p>The CDCA Plan would be amended to reflect the multiple use and vehicle use classifications for each alternative. It would also be amended to reflect adaptive management of the proposed adaptive management area, the visitor supply (based on the number of vehicles), and the allocation of commercial activities. The CDCA Plan would be amended to expand the size of the ISDRA by approximately 1200 acres.</p>

Alternative 2: Recreation and Natural/Cultural Resource Protection Alternative

Under Alternative 2, the actions identified above would be adopted. Each of the management areas would also be assigned the following specific ROS classification, vehicle use class and multiple use class that would be used to guide future visitor use and other management decisions such as the level of facility construction:

	ROS See Figure 2-3	Vehicle Use Class	Multiple Use Class See Figure 2-4
Mammoth Wash	Semi-Primitive Motorized	Open	Limited
North Algodones Dunes Wilderness	Semi-Primitive Non- Motorized	Closed	Controlled
Gecko	Rural	Open	Intensive
Glamis	Roaded Natural	Open	Moderate
Adaptive	Semi-Primitive Motorized	Limited, except for areas used for controls in the monitoring program, which are Closed. Please see the Monitoring Plan for more information.	Limited
Ogilby	Roaded Natural	Open	Moderate
Dune Buggy Flats	Roaded Natural	Open	Moderate
Buttercup	Rural	Open	Intensive

The management focus for Alternative 2 would be to ensure continued use of the ISDRA for OHV recreational opportunities, consistent with its designation as a Recreation Area, and to provide for the protection of natural and cultural resources.

Beginning in October 2003, the Gecko Road vending pad would be the designated long term vending pad. Vending on this pad will be allowed continuously throughout the duning season. That is, vending would continue to be 7 days a week in this area.

The short term vending locations for this alternative would be located at Buttercup, Dune Buggy and Glamis. Commercial services would include an increase in the number of days a vendor could operate at a short term vending location at the ISDRA. Vending would be expanded to include seven days a week vending from noon on December 25 through noon on the Monday following January 1. Vending would also be expanded to include the seven days prior to Easter. Vending would be allowed on all observed federal holidays. (If the observed federal holiday falls on a Friday, vending would be allowed from noon on the Thursday prior to the holiday and continue through the weekend to noon on Monday. If the observed federal holiday falls on a Monday, vending could continue from the previous Friday, at noon, through the weekend to Tuesday at noon.) Vending would be allowed from noon the Thursday before Thanksgiving to noon the Monday following Thanksgiving. Vendor locations are shown in Figure 2-5.

Alternative 2 also includes the construction of a new law enforcement and educational facility at the location of the current ranger station, Cahuilla, and a permanent law enforcement and educational facility at Buttercup. The construction of these two facilities will restrict overnight camping from within 50 feet of the facilities.

A key component of alternatives 2 and 4 is the implementation of an adaptive management strategy coupled with biological resources monitoring of the Adaptive Management Area. The Adaptive Management Area would be open from dawn to dusk during October 15 to March 31 of each year and closed to vehicles from April 1 through October 14. The adaptive management and monitoring program would include the development of a monitoring plan and analysis of the monitoring results to determine the impacts (if any) to species of concern as a result of recreational use of the ISDRA. Management of recreational use, especially in the Adaptive Management Area, would be evaluated periodically and the level of use would be revised as needed to achieve a balance of providing motorized recreational opportunities and conserving species of concern. The special-status plant species to be monitored would be Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*), Algodones Dunes sunflower (*Helianthus niveus* ssp. *tephrodes*), and sand food (*Pholisma sonora*). A BLM sensitive species, the Colorado Desert Fringed Toed Lizard (*Uma notata notata*) will also be monitored. Monitoring and surveys would also occur for recruitment of microphyll species, cover and birds, as funding is available. Aerial monitoring of OHV use patterns will continue for the ISDRA. OHV use would be estimated using permit data, fee data and survey information. The data from biological monitoring and OHV estimated use would be used to develop management actions. Please see Appendix A for a copy of the proposed monitoring plan.

In addition, alternatives 2 and 4 would allow access to the Adaptive Management Area via permit only; and those entering the area would be required to participate in a resource conservation program. This program would be required for all drivers of OHVs and for each person entering the area by foot. The program will allow for accommodations for children and disabled individuals. Certification by the participants would document that they have completed and understand the environmental program. No facilities would be allowed in this area, and interpretive signs would be provided to educate OHV users about the sensitive natural and cultural resources in that area.

Visitor use in the Adaptive Management Area would be limited to 75 OHV groups (defined as up to 7 vehicles per OHV group) per day (a maximum of 525 vehicles per day), for the first year of implementation. This visitor supply will be adjusted after collecting data for three years, as required by the monitoring data. After the initial three years, adjustments to the permitted number of groups may be made on a yearly basis (increased or decreased) if the analysis indicates adjustments can be made at that frequency. During the first three years the number of non-OHV users will also be monitored in order to determine what the demand is for this area. Monitoring of the number of non-OHV users will continue on a yearly basis until a visitor supply for this population is determined.

Among the action alternatives (2, 3, and 4), this alternative is anticipated to result in the greatest likelihood of meeting the project purpose, need and goals. It is the alternative that best balances the conflicting goals of resource conservation and recreational use. Therefore, Alternative 2 is considered the Preferred Alternative by BLM. Alternative 2 is shown in Figures 2-3 and 2-5.

[View Figure 2-3](#)

Alternative 2 ROS from draft EIS - 89Kb

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Alternative 2 MUC - 74Kb

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Alternative 2 - Vendor locations - 66Kb

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Alternative 3: Natural and Cultural Resources Protection Alternative

Under Alternative 3, the actions identified as common to all action alternatives would be adopted. Each of the management areas would also be assigned the following specific ROS classification that would be used to guide future visitor use and other management decisions (e.g., levels of facilities construction, law enforcement):

	ROS See Figure 2-6	Vehicle Use Class	Multiple Use Class See Figure 2-7
Mammoth Wash	Semi-Primitive Non-Motorized	Closed	Controlled
North Algodones Dunes Wilderness	Semi-Primitive Non-Motorized	Closed	Controlled
Gecko	Roaded Natural	Open	Moderate
Glamis	Semi-Primitive Motorized	Open	Limited
Adaptive	Semi-Primitive Non-Motorized	Closed	Controlled
Ogilby	Semi-Primitive Motorized	Open	Limited
Dune Buggy Flats	Semi-Primitive Motorized	Open	Limited
Buttercup	Roaded Natural	Open	Moderate

The semi-primitive non-motorized ROS classification of the Mammoth Wash, Adaptive, and North Algodones Dunes Wilderness Management Areas excludes OHV recreational activities in those areas. Law enforcement vehicles and staff, however, would be exempt from this prohibition. The ROS classification of semi-primitive non-motorized in the Adaptive Management Area would close this area to motorized recreation activity. Therefore, permits and environmental programs addressing the unique species in the central dunes would not be required because vehicular access would not be allowed. Alternative 3 is shown in Figures 2-6 and 2-7.

Alternative 3 would effectively provide a higher level and more immediate focus on natural and cultural resources in the ISDRA through the application of management actions that would reduce OHV use. Monitoring would still occur under Alternative 3, but no adaptive management program permitting OHV use would be implemented during the life of this Management Plan. Because the Adaptive and Mammoth Wash Management Areas would have the same ROS category as the North Algodones Dunes Wilderness Management Area (semi-primitive non-motorized), similar management objectives and actions would apply. This would create uniformity of management direction over a larger area.

Signing and public information would be provided to inform OHV users of the motorized use restrictions in the Mammoth Wash, North Algodones Dunes Wilderness, and Adaptive Management Area to minimize the potential for incidental trespass. In addition, an increase

in the number of law enforcement staff would be included as a management action. The closure of the Mammoth Wash and Adaptive Management Areas to motorized recreation activity would provide the greatest level of assurance that sensitive natural and cultural resources would remain protected.

However, managing approximately 67,596 acres in the semi-primitive non-motorized ROS category would reduce the total area available to OHV activity at the ISDRA, and within the California Desert as a whole, by that number of acres. However, this would allow approximately 42 percent of the ISDRA to be managed mainly for its natural and cultural resource values. In addition, the total number of recreational users that could be accommodated in the ISDRA would be reduced under this alternative as compared to the proposed alternative due to the ROS classifications that are assigned to the management areas. No additional law enforcement facilities would be built.

A new ranger station would be placed at Osborne Outlook. However, the main focus of this facility would be public education, rather than law enforcement. A new ranger facility would not be developed in the Buttercup area. The temporary ranger station would continue to be utilized at Buttercup.

This alternative would allow short term vending from October 1 through May 31 from noon Thursday through noon Monday at the Gecko, Glamis, Buttercup and Dune Buggy Vendor Pads. This alternative does not provide a long term vendor area. Vendor locations are shown in Figure 2-8.

[View Figure 2-6](#)

Alternative 3 ROS from draft EIS - 90Kb

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[View figure 2-7](#)

Alternative 3 MUC - 74Kb

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[View figure 2-8](#)

Vendor locations Alternative 3 - 63Kb

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Alternative 4: Motorized Recreation Opportunities Alternative

Under this alternative, the management actions for the ISDRA would be responsive to public input that emphasizes a need for maximal motorized recreational opportunities. Therefore, management measures would be directed at allowing an increased intensity of OHV activity. The increased intensity of use facilitated by Alternative 4 would serve to accommodate existing and future OHV recreational demand at ISDRA by increasing the overall visitor supply, as well as by shifting the areas of use. In addition, Alternative 4 would provide an altered type of recreation experience at the ISDRA by adding an urban recreational opportunity (greater densities would be allowed for camping compared with the other alternatives).

Under Alternative 4, the actions identified as common to all alternatives would be implemented. Each of the management areas would also be assigned the following specific ROS classification that would be used to guide future visitor use and other management decisions (e.g., levels of facilities construction, law enforcement):

	ROS See Figure 2-9	Vehicle Use Class	Multiple Use Class See Figure 2-10
Mammoth Wash	Roaded Natural	Open	Moderate
North Algodones Dunes Wilderness	Semi-Primitive Non-Motorized	Closed	Controlled
Gecko	Urban	Open	Intensive
Glamis	Rural	Open	Intensive
Adaptive	Roaded Natural	Limited, except for areas used for controls in the monitoring program, which are Closed. Please see the Monitoring Plan for more information.	Moderate
Ogilby	Rural	Open	Intensive
Dune Buggy Flats	Rural	Open	Intensive
Buttercup	Urban	Open	Intensive

The ROS classifications assigned to most proposed management areas would be consistent with a desired moderate-to-high level of OHV recreational use. The ROS for the Adaptive Management Area would be roaded natural. Limited facilities may be developed under this classification in the Adaptive Management Area. The monitoring and adaptive use of this area as described in alternative 2 would be implemented. The classification for the Glamis Management Area would be rural. Future management actions could include facilities to accommodate increased visitation such as new campgrounds, camping pads, toilets, trash stations, and information kiosks.

Under this alternative, vending would be allowed from October through the end of May, seven days a week at three long term vendor areas: Buttercup, Dune Buggy Flats and on Gecko Road. Glamis would be a short-term vendor area. Vendor locations are shown in Figure 2-11.

Commercial services would include an increase of the number of days a short-term vendor could operate at the ISDRA. Vending would be expanded to include seven days a week vending from noon on December 25 through noon on the Monday following January 1. Vending would also be expanded to include the seven days prior to Easter. Vending would be allowed on all observed federal holidays. (If the observed federal holiday falls on a Friday, vending would be allowed from noon on the Thursday prior to the holiday and continue through the weekend to noon on Monday. If the observed federal holiday falls on a Monday, vending could continue from the previous Friday, at noon, through the weekend to Tuesday at noon.) Vending would be allowed from noon the Thursday before Thanksgiving to noon the Monday following Thanksgiving.

Permanent law enforcement and educational facilities would be developed in Buttercup. The current Cahuilla Ranger Station would be expanded to meet the law enforcement needs in the Glamis area. Alternative 4 is shown in Figures 2-9 and 2-10.

[View Figure 2-9](#)

Alternative 4 ROS - 82Kb

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View Figure 2-10

Alternative 4 MUC - 78Kb

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[View Figure 2-11](#)

Alternative 4 Vendor Locations - 63Kb

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Alternatives Considered But Eliminated

This section presents the alternatives that were initially considered for analysis in this EIS but eliminated from further detailed consideration. Overall, the primary reason that they were not carried forward for detailed analysis is that they would not meet the purpose and need of the BLM's proposed action. Although these alternatives are not evaluated in detail, issues of concern raised by the public in the scoping meetings and in other forums are included in several of the alternatives.

Hybrid Recreation Intensive Alternative

The Hybrid Recreation Intensive Alternative would open the majority of the ISDRA to motorized and non-motorized recreational opportunities with the exception of the Wilderness Area and certain closed areas. The Hybrid Recreation Intensive Alternative would:

Implement several northwest-southeast trending permanent closure areas for resource protection along the western dune boundary. OHV corridors, associated with Coachella Canal drop bridges, allowing motorized access to the interior dunes, would traverse these closures at periodic locations.

Establish a single larger east-west closure for resource protection traversed by two north-south OHV corridors.

Install fencing along naturally occurring valleys at the base of dunes to increase compliance and decrease maintenance.

Rationale for Rejection: The primary reason for rejection of this alternative is that it does not meet the purpose and need to maintain habitat requirements for special status species. Specifically, habitat fragmentation would result from implementation of this alternative. Although this alternative provides for closure of certain areas of the ISDRA to OHV use, these closures would fragment existing sensitive species populations by allowing multiple areas at which to traverse the dunes by motorized vehicles. Also, it does not provide a process to allow the maximum recreational use of the ISDRA while maintaining the unique and diverse habitat of the dunes system.

Total Closure Alternative

The Total Closure Alternative would implement a complete exclusion of OHV use in the ISDRA with the intent of maximizing natural and cultural resource protection. The Total Closure Alternative would be defined by the following characteristics:

The entirety of the ISDRA would be closed to motorized recreational opportunities.

Existing road access to the ISDRA would be maintained, but roads would not be expanded/improved.

Existing campsites would be retained, but campsites would not be added or improved.

Permits for vending opportunities would not be issued.

Natural resource monitoring would not occur and inventories of plant, wildlife, and cultural resource inventories would not be conducted.

Rationale for Rejection: The primary reason for rejecting this alternative is that it does not meet the purpose and need for the action contemplated by the BLM. Specifically, a total closure alternative would not:

Conform to the CDPA intent to provide for continued OHV use at the ISDRA.

Provide a process to allow the maximum recreational use of the ISDRA while maintaining the unique and diverse habitat of the dunes system.

Provide the opportunity for OHV recreational activities in accordance with the intent of the CDCA Plan. (The CDCA Plan specifically designates the ISDRA as an open area for OHVs and the ISDRA has been managed for this use since the early 1970s.)

Meet the BLM's specific goals for the actions evaluated in this EIS (i.e., provide a variety of sustainable OHV and other recreational activities).

Identify the type and level of visitor services, including facilities, needed to support desired visitor use.

Institute measures to achieve desired visitor use levels or accommodate service providers in the ISDRA.

In addition, total closure of the ISDRA is not required to ensure protection of sensitive species at the ISDRA. Measures for protection of these resources are incorporated into several of the alternatives considered in detail in this EIS.

Interim Management Alternative

Under the Interim Management Alternative, the ISDRA would continue to be managed according to the existing and approved management plan and policies (i.e., the 1987 RAMP). This alternative would include policies implemented since the 1987 RAMP, including designation of the North Algodones Sand Dunes Wilderness in 1994, and release of WSA 362 from further studies to determine suitability for wilderness designation. In addition, this alternative would include the recent interim closures and actions of the negotiated settlement agreement that stipulate interim temporary closure of certain areas at the ISDRA (i.e., those

measures taken to provide protection for endangered and threatened species). Characteristics of the Interim Management Alternative include the following:

No adaptive management of ISDRA

Permanent Northern Closure (approximately 3,802 acres), located just south of Mammoth Wash

Permanent Central Closure Number 1 (approximately 2,000 acres), located east of Gecko Road

Permanent Central Closure Number 2 (approximately 43,345 acres), located in the center of the Glamis/Gecko area

Permanent Patton Valley Closure (approximately 310 acres), located near Patton Valley

Permanent Southern Closure (approximately 160 acres), located south of I-8 in the northwestern portion of Buttercup

Permanent closure of Eastern Area, non-critical, Class III, desert tortoise habitat to camping (approximately 25,600 acres)

Rationale for Rejection: The primary reason for rejecting this alternative is that interim closures (as stipulated in the settlement agreement) do not meet the purpose and need for the action. Specifically, this alternative would not:

Provide a process to allow the maximum recreational use of the ISDRA while maintaining the unique and diverse habitat of the dunes system.

Develop a large continuous geographical area for habitat and species conservation. This area will include all of the habitat types that are present in the dunes system. Although the large central closure could meet this need, the other smaller closures would not meet this need and would be in conflict with the need that these acres are continuous and that the habitat is not fragmented. The additional fragmented and discontinuous acres would unnecessarily result in a lower number of available acres for recreational use, which would be in conflict with the recreational need statement.

Allow the closed geographical areas to be available for OHV and other recreational uses or for the recreational use of the area to be adjusted as needed to conserve the habitat and species.

Utilize sound science when making decisions concerning species conservation and multiple use of the ISDRA.

These closures were not developed using sound science and information we now have available. We now know that these closures are not required for adequate protection of sensitive species. A settlement agreement was developed in November 2000 with plaintiffs (Center for Biological Diversity and others) to establish interim actions to protect endangered and threatened species pending completion of USFWS consultation on the CDCA Plan in total. Prior to November 2, 2000, the BLM did not have the results of monitoring to assess adequately the status of sensitive species addressed by the settlement agreement. The results of the monitoring conducted since November 2000 and other data collected prior to November 2000 and assessed after the settlement agreement indicate that continuing the interim closures is not necessary to ensure adequate protection for the species of concern.

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CHAPTER 3

Affected Environment

Introduction

This chapter presents a description of the affected environment for the Plan Area and vicinity. It is organized into the following resource categories:

- Recreation (Section 3.1)
- Biological Resources (Section 3.2)
- Law Enforcement and Public Safety (Section 3.3)
- Social (Section 3.4)
- Economics (Section 3.5)
- Land Use and Land Ownership (Section 3.6)
- Visual Resources (Section 3.7)
- Water Resources (Section 3.8)
- Cultural Resources (Section 3.9)
- Transportation and Traffic (Section 3.10)
- Noise (Section 3.11)
- Air Quality (Section 3.12)
- Hazardous Materials (Section 3.13)
- Geology, Energy, and Mineral Resources (Section 3.14)

For the purpose of preparing the analysis provided in Chapter 4 of this EIS, the baseline affected environment is defined as those conditions that existed prior to implementation of the temporary OHV and camping closures, referred to as “Current Conditions” (see Chapter 1). The last full recreation season at ISDRA in which these conditions occurred was October 1, 1999 to September 30, 2000. During this time period, management activities at ISDRA were conducted in accordance with the 1987 RAMP.

The Imperial Sand Dune system is divided into three main areas. The northernmost area is known as Mammoth Wash. South of Mammoth Wash and north of SR-78 is the North Algodones Dunes Wilderness, a 26,202-acre wilderness area established by the 1994 CDPA. This area is closed permanently to OHVs and other mechanized use, with hiking and horseback access permitted. The largest and most heavily used OHV area is located south of SR-78, and continues south past I-8.

Areas within the ISDRA currently designated for OHV use by the CDCA Plan and the 1987 RAMP include:

- That portion of Mammoth Wash located north of the North Algodones Dunes Wilderness

- The Glamis/Gecko area, located just south of SR-78
- Dune Buggy Flats and Ogilby located in the southern portion of ISDRA
- Buttercup, located south of I-8, near the border of Mexico

The following sections provide further detail on the baseline conditions at ISDRA, based on 14 distinct but interrelated resource categories.

3.1 Recreational Resources

Overview

The Imperial Sand Dunes Recreation Area, commonly called (Algodones Dunes or Glamis), is the premiere and most visited OHV recreation area in the California Desert Conservation Area. It is also considered the premiere sand dune OHV recreation area in the Nation due to the outstanding and expansive opportunities. In addition, the ISDRA provides unique habitat for several endemic and sensitive plant, insect and animal species.

The ISDRA is located in Imperial County, California approximately 25 miles west of the Colorado River and immediately north of the border between the United States and Mexico. Primarily State Route 78 and Interstate 8 provide access to the Imperial Sand Dunes. The City of Brawley is located 25 miles to the west, the City of El Centro 40 miles southwest, and the city of Yuma, AZ is 15 miles to the east. The Dunes contain several open areas as well as a congressionally designated wilderness area.

The Mammoth Wash “open” area is the most remote OHV area within the ISDRA due to its northern location within the ISDRA. The Mammoth Wash “open” area is about five miles long and two miles wide and is accessed by the Glamis-Niland gravel county road. The distance from the pavement to the staging area is approximately 13 miles. Visitation is usually 0 to 5 campers with weekend and holiday visitation peaking at about 40 primary vehicles. Visitors to this area enjoy the remote location away from the intensively utilized areas of the ISDRA. On weekends during the use season (October-May), visitors tend to be residents from the nearby communities of Niland and Calipatria.

The North Algodones Dunes Wilderness is located between the Mammoth Wash “open” area and State Highway 78. A Watchable Wildlife site is conveniently located on the Glamis-Niland Road, two miles north of Highway 78. The site provides interpretive displays on the wildlife and habitat of the Algodones Dunes and provides an excellent staging area for hikes and school field trips. Hikers into the wilderness can observe many indigenous plant and animal species such as the Pierson’s milk-vetch (*Astragalus magdalenae* var. *peirsonii*), fringe-toed lizard, mule deer and other desert animals.

The Glamis / Gecko Area just south of Highway 78 is the most intensively utilized OHV area within the ISDRA. Gecko Road is the most developed area with numerous developed campgrounds and other facilities. Located along Gecko Road is Cahuilla Ranger Station, the headquarters for ISDRA and incident command center for dunes operations. Dispatch services and most of the personnel are based out of the Station. Other facilities along Gecko Road include: Gecko Campground; Keyhole Campground; Roadrunner Campground; six hardened camping pads; a vendor area; vault toilets; trash facilities; selfpay fee stations; kiosks; and a public telephone.

The Glamis Area (eastside) is undeveloped with minimal facilities and provides for open desert camping. The main access into the Glamis Area is via the Wash Road adjacent to the

Union Pacific (formerly Southern Pacific Rail Road). The improved Wash Road allows for safe and easy access to the camping area known as the “washes”. The Glamis and Garbage Flats areas are open desert camping areas accessed from Highway 78. The BLM provides trash facilities, law enforcement, emergency medical services, and holiday toilet facilities, through a combination of fee demonstration project, appropriated (tax), and California State Parks Off-highway Vehicle Motor Vehicle grant funding. The town of Glamis is privately owned and supports three OHV oriented businesses. There is also the small settlement of Boardmanville just east of “Wash 10” south east of Glamis.

The Dune Buggy Flats area is located in the southern portion of the ISDRA and is located north of Interstate 8. The main access into the area is via the Gordon’s Well exit off Interstate 8 and an improved dirt road. This is an intensive OHV area similar to the Glamis / Gecko area. Facilities located within this area include: kiosks, signs, trash facilities, self-pay fee stations; and a portable ranger station trailer staffed by BLM staff on holiday weekends.

The area west of the Coachella Canal and adjacent Gordons Well Road was closed (March 2002) to camping in order to protect the flat-tailed horned lizard (*Phrynosoma mcalli*) and its habitat. The closure was the result of a Biological Opinion that mitigates impacts of the Herman Schneider Memorial Bridge. The bridge opened in April 2001 and provides OHV access across the All American Canal and the shared use (OHV and Streetlegal vehicles) of the Gordons Well overpass. This allows OHV enthusiasts legal access across Interstate 8 from the Buttercup Valley to the Dune Buggy Flats area. Prior to the bridge construction, there were illegal and dangerous OHV crossings across Interstate 8. The land east of and adjacent to the closed area is privately owned and supports an OHV oriented private business.

Located in the southeastern area of the ISDRA is the Ogilby Camp area. The access to this area is via the Ogilby Road and a dirt/sand road. This area is similar to Mammoth Wash and has a fee machine but no other facilities, or services, except irregular BLM patrols. Visitation is low to moderate with most use on weekends and holidays.

The Buttercup Area is located south of Interstate 8 and north of the international border with Mexico. The Grays Well Road provides access to Buttercup, Midway, and the Plank Road camping areas. All three camping areas have vault toilets, and trash facilities. The Plank Road provides visitors a chance to observe an interesting part of California history. A metal protective barrier and interpretive signs surround the last remnants of the oldwooden road that enabled vehicles to cross the Dunes in 1915. These areas are all within a 20-minute drive to Yuma, AZ, where there are shops and a hospital. The Mexico border town of Algodones is also nearby. Visitors can drive street vehicles, park, and then walk across the border to shop and eat.

OHV opportunities near the Dunes are limited to existing trails and routes. There is a network of trails east of the Dunes that extend to the Colorado River and north to Interstate 10. There are several Wilderness Areas and military closures that limit access to several areas. There is very little OHV opportunity directly west of the Dunes in the East Mesa. The cities of Brawley, Imperial, Holtville, and El Centro lie west of the East Mesa. On the far

western side of the valley lie the Ocotillo Wells State Vehicle Recreation Area, Plaster City and Superstition Mountains. These are open areas with limited use areas around them.

Center for Biological Diversity v. Bureau of Land Management

On March 16, 2000, the Center for Biological Diversity, and others (Center) filed for injunctive relief in U.S. District Court, Northern District of California (court) against the Bureau of Land Management (BLM) alleging that the BLM was in violation of Section 7 of the Endangered Species Act (ESA) by failing to enter into formal consultation with the U.S. Fish and Wildlife Service (FWS) on the effects of adoption of the CDCA Plan, as amended, upon threatened and endangered species. On August 25, 2000, the BLM acknowledged through a court stipulation that activities authorized, permitted, or allowed under CDCA Plan may adversely affect threatened and endangered species, and that the BLM is required to consult with the FWS to insure that adoption and implementation of the CDCA Plan is not likely to jeopardize the continued existence of threatened and endangered species or to result in the destruction or adverse modification of critical habitat of listed species.

Although BLM has received biological opinions on selected activities, consultation on the overall CDCA Plan is necessary to address the cumulative effects of all the activities authorized by the CDCA Plan. Consultation on the overall Plan is complex and the completion date was uncertain. Absent consultation on the entire Plan, the impacts of individual activities, when added together with the impacts of other activities in the desert are not known. The BLM entered into negotiations with plaintiffs regarding interim actions to be taken to provide protection for endangered and threatened species pending completion of the consultation on the CDCA Plan. Agreement on these interim actions avoided litigation of plaintiffs' request for injunctive relief and the threat of an injunction prohibiting all activities authorized under the Plan. These interim agreements have allowed BLM to continue to authorize appropriate levels of activities throughout the planning area during the lengthy consultation process while providing appropriate protection to the desert tortoise and other listed species in the short term. By taking interim actions as allowed under 43 CFR Part 8364.1, BLM contributes to the conservation of endangered and threatened species in accordance with 7 (a) (1) of the ESA. BLM also avoids making any irreversible or irretrievable commitment of natural resources that would foreclose any reasonable and prudent alternative measures that might be required as a result of the consultation on the CDCA plan in accordance with 7 (d) of the ESA. On November 3, 2000, the stipulation respecting Peirson's milk-vetch became effective which temporarily closed approximately 49,000 acres in the open area until the completion of this EIS and the respective RAMP.

Vehicle Types

The types of vehicles that are utilized at the ISDRA include off road and street-legal vehicles. The vehicle types that can be found at the ISDRA include: sand rails, dune buggies, all terrain vehicles, motorcycles, 4WD pickups, 2-WD pickups, sport utility vehicles and custom built off road vehicles. Private, law enforcement, military, commercial and rescue aircraft frequently fly over the dunes at low altitudes.

Regulatory Framework

Since its designation, the ISDRA has been managed according to mandates set forth in both the 1980 California Desert Conservation Area and the 1976 Federal Land Policy and Management Act. Among FLPMA's requirements is:

...the use of all California desert resources can and should be provided for in a multiple use and sustained yield management plan to conserve these resources for future generations, and to provide present and future use and enjoyment, particularly outdoor recreation uses, including the use, where appropriate, of off-road recreational vehicles... [Title VI. SC1781. Sec. 601 (a)(4)].

The CDCA Plan of 1980, as amended provides overall management direction for all public lands in the CDCA. The CDCA Plan's Recreation Element lists several goals, as follows:

- Provide for a wide range of quality recreation opportunities and experiences emphasizing dispersed undeveloped use.
- Provide a minimum of recreation facilities. Those facilities should emphasize resource protection and visitor safety.
- Manage recreation use to minimize user conflicts, provide a safe recreation environment, and protect desert resources.
- Emphasize the use of public information and education techniques to increase public awareness, enjoyment, and sensitivity to desert resources.
- Adjust management approach to accommodate changing visitor use patterns and preferences.
- Encourage the use and enjoyment of desert recreation opportunities by special populations, and provide facilities to meet the needs of those groups (BLM, 1980).

To manage the desert resources, the CDCA Plan divided all public land within the plan boundaries, which includes the ISDRA, into Multiple-Use Classes that stipulate whether different areas could be used for motorized recreation, motorized access, and the intensity of that use. Because these classes are legally binding, unless amended through the public process, the BLM must manage the ISDRA according to the class prescriptions.

1987 RAMP

The BLM prepared a RAMP in 1987 to provide direction regarding resolving issues that were being experienced at the dunes. The 1987 RAMP included use statistics for 1977, 1978, and 1985, projected visitation and densities for 1986 through 2000, descriptions of use areas, and identification of the major issues at the dunes.

Public workshops were held to identify and prioritize management issues, concerns, and problems. The 12 major issues categories identified at the workshops are listed below:

- Recreation opportunities
- Safety and emergency services
- Resource protection and enforcement
- Protection of Wilderness suitability
- Public contact and interpretation
- Facility development
- Operations and maintenance
- Concessions and vendors
- Acquisition of legal access and undeveloped state and private in holdings
- Compatibility of land uses
- Use fees
- Potential Desert Plan amendments

Ten of these issue categories were addressed by the 1987 RAMP. Two categories, Use fees and Potential Desert Plan amendments, were addressed in other forums. The 1987 RAMP included:

- A series of management objectives to be applied to the entire ISDRA
- Multiple-Use Class objectives
- Management constraints (the CDCA Plan, other activity plans, authorized uses other than recreation, and Wilderness interim management constraints)

The management program outlined in the 1987 RAMP included management prescriptions for the 10 major issue categories and prioritized them into four funding levels. The funding levels included Level 1 (reduced funding), Level 2 (maintain present management capability), Level 3 (modest improvements), and Level 4 (significant improvement in management capability) (BLM, 1987).

Current Situation

Recreation Visitation

The ISDRA is located within a three-hour drive from Los Angeles, Orange County, Riverside, San Diego, and Phoenix. The ISDRA is a highly valued and unique recreation resource within the southwestern United States for two reasons: (1) it is a sand dune ecosystem of a size and height unparalleled, and (2) it fills a unique and valued niche for providing the largest acreage of dunes oriented, motorized recreational opportunities in the United States. The ISDRA has far more acreage than the 10 other dune areas that are located within 1,500 miles.

Continued population growth in southern California, the expanding popularity of OHV recreation (108% increase since 1980 in California), and a 48% decrease in the acres available to OHV recreation in the California Desert, has resulted in a steady increase in visitation at the ISDRA. Due to the increased demand for OHV recreation there has been a need for increased law enforcement.

The ISDRA provides for many types of recreational experiences with OHV recreation as the dominant activity. OHV enthusiasts who visit the ISDRA on holiday weekends will experience large crowds, noise, and intensive 24-hour OHV activity, in areas such as Glamis,

Gecko, Dune Buggy Flats and Buttercup. There are other locations within the ISDRA where OHV recreation is less intense on holiday weekends and visitors can have a quieter, less intensive experience (Mammoth Wash or the Ogilby Areas). The majority of the opportunity lies during weekdays and non-holiday weekends when a range of recreational settings can accommodate many different types of experiences.

The ISDRA is managed to provide both non-motorized and motorized recreational opportunities to area residents and visitors. In addition to OHV recreation, the ISDRA provides other recreational opportunities including hiking, horse back riding, wildlife and scenery viewing, picnicking, photography, nature study and environmental education, camping, sightseeing and driving for pleasure. The ISDRA also provides a special niche that produces a particular social experience. It provides wide-open spaces where enthusiasts can seek solitude or a substantially modified natural environment with facilities for a highly intensified motorized recreation use experience.

The earliest known annual visitation at the ISDRA was 150,000 in the late 1970s; the number of visits had increased to 225,900 visits in 1985 (BLM, 1987). The average annual number of visits to the ISDRA over the 2-year period of 1999 to 2001 was over 750,000 (BLM, 2001). Between October 1, 1999, and September 30, 2000, there were 867,753 visits to the ISDRA. This is shown in Table 3.1-2.

TABLE 3.1-2 ISDRA VISITS (1999-2000)^A

Site	Visits	Visit (%)
Buttercup Campground	107,639	12.4
Dispersed – Imperial Dunes	571,319	65.8
Gecko Campground	107,639	12.4
Midway Camping Pad	16,231	1.9
Plank Road	16,231	1.9
Roadrunner Campground	48,694	5.6
Total	867,753	100.0

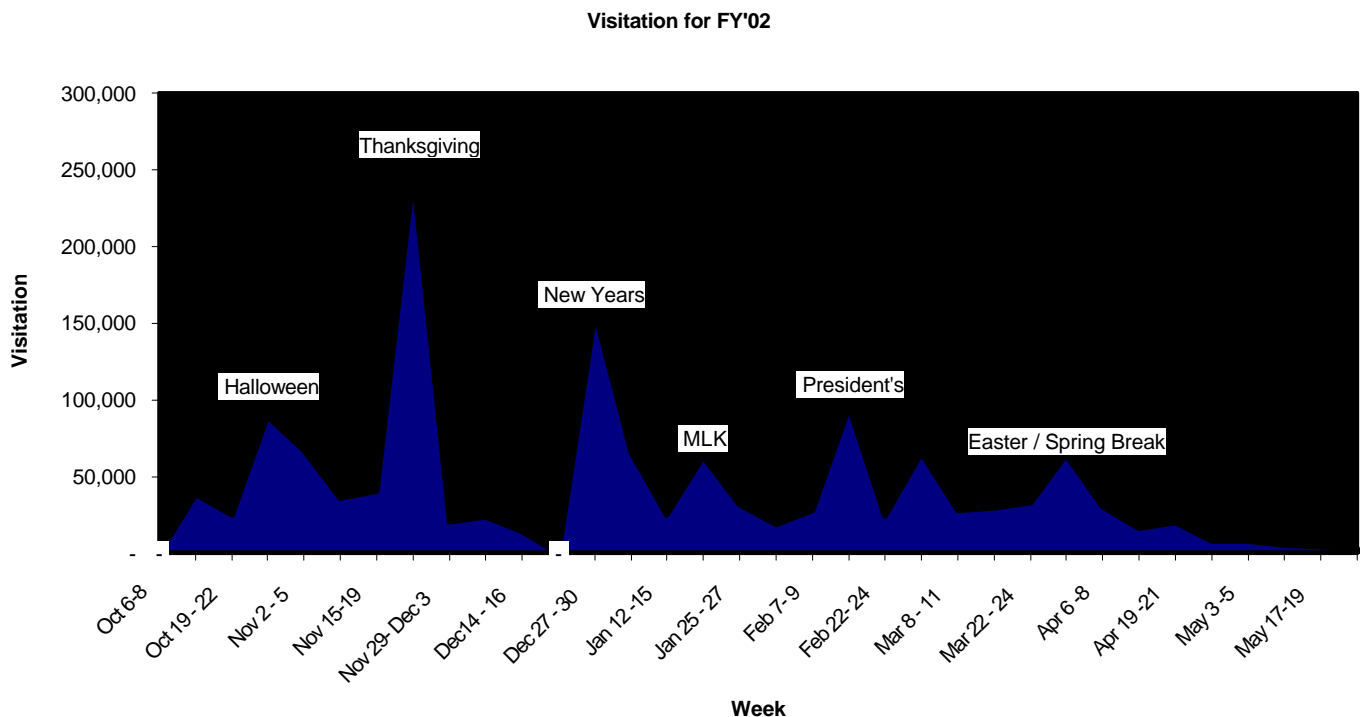
^aThe 1999-2000 year is defined as October 1, 1999, through September 30, 2000.

^bA “Visit” occurs when one person visits BLM lands to engage in any recreational activity, whether for a few minutes, full day, or more.

Source: BLM, 2001q

Annual visitation in fiscal year 2001 was estimated at 1.4 million visitors with peak visitation between October-April. (This is BLM’s visitation estimate based on 3.5 people per vehicle. During the public comment period, many visitors did not agree with this method of determining visitors. Visitor estimates for 2001 based on data from previous years places the visitation around one million people. BLM will conduct a visitor survey in the future to be able to better count visitors at the ISDRA.) Visitation to ISDRA is unevenly distributed throughout the year. The highest visitation at the ISDRA occurred during the six major

holiday weekends that include: Halloween, Thanksgiving, Christmas/New Year, Martin Luther King, President's Day and Easter. The visitation estimates for the major holiday weekends often exceed 100,000 visitors. In fact, 2001's visitation during the Thanksgiving weekend was estimated at 240,000 visitors. 45% percent of the annual visitation occurs during approximately 19 percent of the recreation season (i.e., six weeks out of eight months in the season). These holiday days are significant spikes in visitation.



Graph 3.1-3 This graph illustrates the extreme peaks in visitation at the Dunes. This data was collected during the 2001-2002 season through vehicle counters located at Gecko Rd., Osborne, Glamis off-ramp, the Wash Rd., Ogilby camp area, Gordons Well, and Grays Well. The vehicle counts were taken every Sunday morning and multiplied by 3.5 to extrapolate the visitor count.

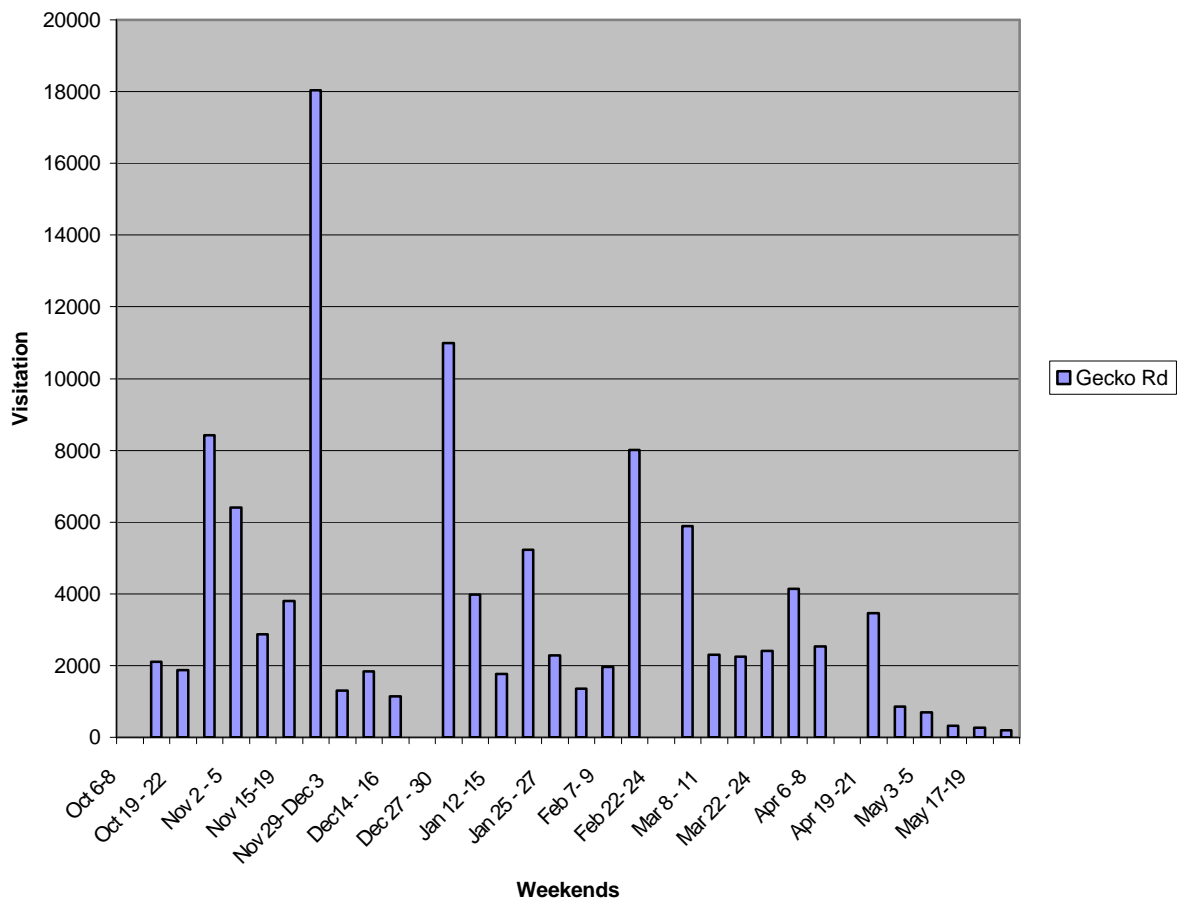
Visitors to the ISDRA are predominantly Anglo (68%), relatively young (85% under 45 years of age), and most (91%) have a high school education. Most visitors (82%) are from California, and another 15% are from Arizona. The most frequently mentioned activity pursued at ISDRA is OHV riding (90%). However only 35% identified OHV riding as the primary reason for visiting the dunes. Other reasons included: the dunes, friends, open space, play, accessible, curiosity, to get away, vacation, and to race. 94% of the visitors learned about the dunes from friends and family. (USFS, 1993)

Over 80 percent of the visitors to the ISDRA are repeat visitors (USFS, 1993). It is common for a camping party to consist of three or four generations of relatives who have been visiting the area over the years. This provides a sense of tradition, nostalgia, history, intergenerational bonding, and a sense of place attachment.

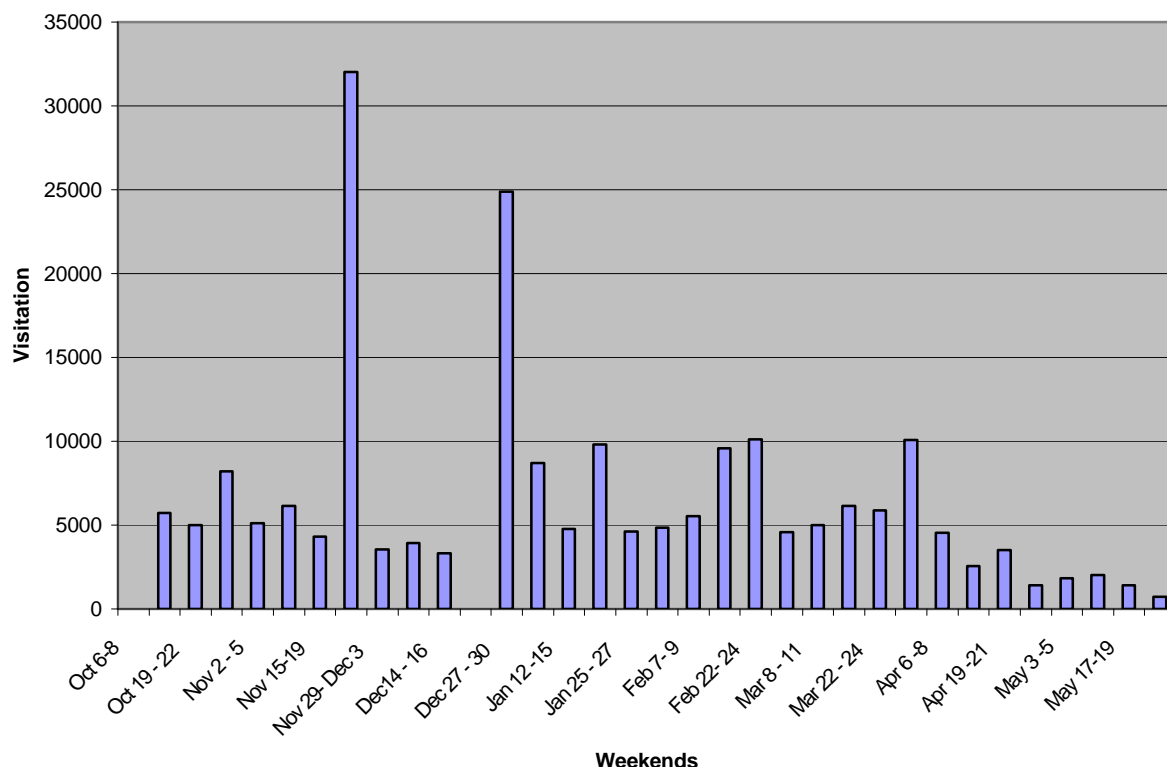
Typical visitation includes relatively large groups for overnight stays. It is common to see overnight groups with 3 to 6 recreation “sleeping” vehicles, accompanying trailers, 10 to 21 family members or friends, and multiple types of OHVs, staying for a 3day weekend. Groups primarily camp in large recreation vehicles accompanied with many conveniences of home (e.g., chairs, tables, awnings, grills, firewood) (Haas, 2002).

The ISDRA is open to the public year-round. However, due to high temperatures throughout the dunes during the summer months, the recreation season is considered to be October 1 through Easter of each year. Because the date of Easter varies from year to year and "spring breaks" offered by the various schools also differ, the end of the recreation season for this analysis is considered to be May 31st.

Gecko Road Visitation Oct 01 - May 02



Gray's Well Visitation OCT 01 -MAY 02



Recreation Supply and Demand

The demand for recreation opportunities at the ISDRA peaks on approximately 12.5% of the recreation season (October 1 to May 30; that is, there is adequate capacity for those visitors who visit the ISDRA any time other than four major holiday weekends (Halloween, Thanksgiving, New Years and President's weekends).

The peak in use on the holiday weekends results in a change in several important social and managerial attributes of the setting, which then leads to a change in the recreation opportunity being provided. There is a change from providing the rural, roaded natural, and semi-primitive types of recreation opportunity to an urban recreation opportunity.

Facilities

Although camping is allowed everywhere within the recreation area, except for the Adaptive Management Area, the area available for two wheel drive vehicle overnight camping is limited to the visiting public. The sandy terrain limits access to most of the recreation area for vehicle camping. The acreage that is suitable is primarily along Gecko Road, the eastern and northern portion of the Glamis Management Area, the western side of the Mammoth

Wash Management Area, the southwest portion of the Dune Buggy Flats Management Area, the eastern portion of the Ogilby Management Area, and the area adjacent to Greys Well Road in the Buttercup Management Area.

The ISDRA has two developed campgrounds adjacent to Gecko Road. Gecko Campground is located approximately 3 ½ miles south of SR 78. It consists of north and south loops that extend out into a rolling sand dunes area. Roadrunner Campground is located at the terminus of Gecko Road, approximately five miles south of SR 78. It consists of one loop that extends out into a flat sandy area. Both campgrounds are the only developed camping areas in the ISDRA. The southern portion of the Roadrunner loop and the northern loop of Gecko Campground are filled in with hard dirt / gravel material to provide camping space. Both campgrounds also provide trash facilities and pit toilets.

The BLM has constructed dirt / gravel “pads” in order to provide additional camping areas for two wheel drive vehicles. There are seven of these pads adjacent to Gecko Road and one adjacent to Grays Well Road.

The rest of the camping in the ISDRA is relatively dispersed although visitors tend to stay in historically used areas such as Glamis, the washes, Buttercup, and Dune Buggy Flats. These areas provide trash dumpsters, and some have pit toilets. The sites that do not have permanent pit toilets have portable toilets delivered and placed in the camping area during the high visitation periods.

Cahuilla Ranger Station is located on Gecko Road near SR 78. The station provides interpretive services and information to the visitors of the Dunes. It also serves as the incident command center during holiday weekends for the BLM and as a contact point for emergency services. The station is set up to accommodate two resident employees. One is the designated emergency medical technician and the other is the sector law enforcement ranger. There is also a maintenance shed to accommodate BLM OHV's and emergency vehicles and supplies. The actual acreage available for overnight vehicle camping and the number of available campsites is provided in Chapter 4 for each alternative.

Recreation Settings

The majority of the visitation in the ISDRA occurs from October through May. Summer visitation level is extremely low due to extremely high temperatures. However, some OHV activity does occur during the summer nights. Typically, the ISDRA experiences high levels of visitation during Halloween, Thanksgiving, New Years, Martin Luther King Day, Presidents Day, and Easter. Visitors to the ISDRA during these time periods will experience crowds and noise. Visitor experiences during other times will be of low to moderate levels of visitor interaction.

In addition to the camping areas on the exterior of the Dunes, the visitors have historical congregation sites within the Dunes. “Vendor row” (aka the mall, the dustbowl) is an area in Glamis Flats that has been historically used for vending of commercial goods and services. The vendors set their sites along the south side of SR 78 between the Glamis Flats offramp and the Glamis private property line. Two rows form, facing each other with OHV traffic

flowing between the vendors. A second line, similar in design, will set up along the west private property boundary of Glamis. These vendors are permitted through the BLM under the special recreation permit program. The holiday crowds, in conjunction with the vendors, seem to create a carnival atmosphere.

There are also historical gathering areas farther into the dunes where access is limited to OHVs. Some of these sites are Competition Hill, the sand drags, Oldsmobile Hill, Patton Valley, Test Hill, and Buttercup Valley. Visitors meet at these locations to test their OHVs, riding skills, and for informal competition. Visitation at these sites peak during different times of the day and are usually busiest during the holidays. Most of the locations are busiest during the day, except for Competition Hill and the sand drags. The crowds at the sand drags start to gather during the late afternoon and dissipate at dusk. The crowds at Competition Hill start gather around eight o'clock and can sometimes remain until after midnight.

The dunes can provide a place for the public to experience solitude and silence or busy crowds and noise. Under each ends of the spectrum, the visitor has the opportunity to experience vast wide-open spaces once out into the dunes system and away from the roads and campgrounds.

Recreation Programs

Recreation Programs at the ISDRA include developed and dispersed camping, and interpretive / informational / educational services. Although there are developed campgrounds in the ISDRA, there are no delineated camp spaces in any of the campgrounds. Camping is dispersed in both developed and primitive areas of the ISDRA. Interpretive / informational / educational services are provided at Cahuilla Ranger Station through displays and contact with a BLM Park Ranger. There are interpretive panels at the watchable wildlife site and the plank road that provide natural and cultural resource information. Informational kiosks are located in several locations throughout the Dunes near the major ingress/egress points. The private businesses sell maps of the area and also display and handout BLM literature free of charge. BLM staff frequently conducts informational stops at the major entry points in the dunes. BLM staff can hand out packets of literature to visitors as they enter the ISDRA. BLM also conducts guided hikes into the North Algodones Dunes Wilderness for the local community and school field trips as staffing allows.

Visitors of the ISDRA prefer to receive information by signs (62%), notes on bulletin boards (57%), and by brochures given at the entrance to the area (51%). They are most interested in receiving information about safety (51%), agency management practices that could affect OHV riding (46%), and the area rules and regulations (45%). In 1993, only 32% of visitors were aware of the Cahuilla Ranger Station and only 12% had visited it. (USFS 1993) However, since this data was collected, the BLM believes these figures have increased substantially. This is partially due to a realignment of the fencing at the Station to make it more visitor friendly, and the inception of the fee demonstration project. The fees instituted in the dunes have required many of the visitors to stop at the Station in order to purchase a pass to the area.

Due to the level of visitation and lack of funding, Imperial County and the BLM work closely together on most medical rescues that occur in the dunes. The rescue work has become an integral part of the recreation division in the El Centro Field Office. The BLM continues to increase its coordination of rescue services with the county each year. In the field, both BLM emergency medical technicians and Imperial County contracted advanced life support ambulance personnel work together as a team to provide the best level of medical aid possible. The BLM has the offhighway 4x4 vehicles and two rescue buggies, and the skilled staff to extract accident victims from the dunes and transport them to the nearest paramedic ambulance. See Chapters 3.3 and 4.3 for more information on law enforcement and rescue.

Management Practices

A variety of practices can be used to manage recreation resources at the ISDRA. The BLM has a program that monitors both natural, cultural, and recreational resources. The BLM monitors sensitive plant, animals and habitats throughout the open and closed areas in the dunes. Transects are walked and driven to record plant and animal densities, and hidden automatic cameras are used to photograph animals using water sources in the dunes. Visitor use is monitored through newly installed traffic counters, and has been done in the past with aerial flights during the weekends. The BLM also conducts visitor surveys, in cooperation with special interest groups, to inventory visitor satisfaction and needs. Using these inventories, BLM managers estimate how well they are meeting national, state, and local goals, and adjust actions accordingly.

Historical Trends

Although it is believed that the fluctuation in the economy can cause yearly fluctuations in visitation to the ISDRA, the level of visitation has increased over time. Between 1980 and 2001 there has been an increase of 108% of the registered OHV in California. Between 1994 and 2001 there has been an increase of 74% of street licensed 4 wheel drive vehicles. Between 1980 and 2000 there has been a 48% decrease in the amount of acres available for OHV recreation (*Taking the High Road, CA State Parks, 2002*). Many of the other major dune recreation areas in the CDCA have been closed to motorized recreation. Only Dumont Dunes and the ISDRA remain open to OHV recreation. Within the ISDRA, 26,202 acres (16%) of the ISDRA has been closed to OHVs as a congressionally designated wilderness. The old wilderness study area 362 (central dunes) has been released from further wilderness study.

Later model OHVs are much more technologically advanced than the old standard OHVs. OHVs are more powerful, and have better suspension and traction. This has led to faster and more reliable vehicles. The types of OHVs have also diversified. It is not unusual to see standard dune buggies, long travel dune buggies, motorcycles, all terrain vehicles, all terrain cycles, golf carts, odysseys, 4-wheel drives, and custom vehicles only limited by the imagination of the builder. Many of the new OHVs will cost as much as \$50,000. OHV enthusiasts are also using more technological equipment as part of their recreational experience. Many enthusiasts are using global positioning systems to navigate through and around the sand dunes. The use of cellular phones has also helped in circumstances when a person is lost, injured, or stranded due to mechanical malfunction.

Camping units have increased in size. Current motor homes and trailers are as long as a semi-truck and much wider. The invention of the “slide out” can make a parked unit up to 15 feet wide. OHV trailers come as enclosed two story units to increase the capacity of OHVs. New motor homes and trailers have all the comforts of home including satellite dish TV, refrigerator and freezer, microwave ovens, desktop or laptop computers, and telephones. These conveniences make it easier for the visitors to have an extended stay. Although there are many visitors who still “rough it” in a tent and a pick up truck, many of the visitors will also have over \$100,000 invested in their OHV, trailer, and camping unit.

Over the last five years both the public and the BLM have noticed a change in the type of visitation in the ISDRA. As other locations in the southwest were being shut down by law enforcement to young crowds of “party types” this type of activity and visitation has increased in the dunes. The visitation of young people who were in the dunes to “party” and not to recreate on OHVs increased, especially on holidays. In response to this trend the BLM has enacted a special law enforcement program to discourage illegal activities at the dunes. After one season (2001/2002) of the high level of law enforcement there has already been a change in the level of inappropriate activity. The BLM feels that the continued enforcement has started to make a difference in the ISDRA and it has resulted in a safer, family oriented recreation area.

Future Trends

California has the highest state population in the nation with a population of 34 million in 2000, and a projected population of 46 million in 2020. California also has the greatest number of OHV enthusiast in the nation with 3.5 million recreationists, 14.2% of all households. California OHV registration has increased 108% since 1980 and there has been a 74% increase in street legal four-wheel drive vehicles since 1994. Southern California has the majority of the OHV owners while it has the less opportunity than other parts of the state. Legal OHV opportunities have decreased 48% in the California Desert since 1980. (Taking The High Road, 2002). This information, coupled with the knowledge that 82% of all visitors to the dunes are from California (USFS, 1993), and the ISDRA supplies a specific niche of OHV recreation not found anywhere else in the nation, leads the BLM to believe that conflicts will be inevitable in the future. The continued cooperation and involvement of all special interest groups and local, state, and federal agencies will be necessary to continue to sustain a quality recreational experience for the years to come.

3.2 Biological Resources

Regulatory Framework

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) of 1973, as amended, provides the regulatory framework for the protection of threatened and endangered (T&E) plant and animal species formally listed under the FESA, as well as their designated critical habitat. The USFWS, in consultation with other federal agencies, administers and enforces the FESA. The following terms are defined by the FESA:

Endangered: Any species that is in danger of extinction throughout all or a significant portion of its range.

Threatened: Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Proposed: Any species that has been proposed for listing as a threatened or endangered species.

Critical Habitat: "...the specific areas within the geographical area occupied by the species ... on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection..."

California Endangered Species Protection

The California Endangered Species Act (CESA) of 1984 and the California Native Plant Protection Act (CNPPA) of 1977 provide the framework for protection of California listed T&E plant or animal species or rare plant species. Protection by the state is also offered to candidate species that have been accepted for state review for potential listing as endangered, threatened, or rare. The following terms are defined by the CESA:

Endangered: A native species or subspecies of animal or plant that is endangered of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change of habitat, overexploitation, predation, competition, or disease.

Threatened: A native species or subspecies of animal or plant that, although not currently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by Chapter 1.5 of the California Fish and Game Code.

Rare: A species, subspecies, or variety of plant is rare when, although not currently threatened with extinction, it is in such small numbers throughout its range that it may become endangered if its present environment worsens.

Candidate: A native species or subspecies of animal or plant that the California Fish and Game Commission (CFGCM) has formally noticed as being under review by the

CDFG for addition to either the endangered or threatened species list, or a species for which the CDFG has published a notice of proposed regulation to add the species to either list.

Species of Special Concern: Native species or subspecies of animal or plant that has become vulnerable to extinction because of declining population levels, limited ranges, or rarity. The goal is to prevent these species from becoming endangered by addressing the issues of concern early enough to secure long-term viability.

BLM Special-Status and Sensitive Species

The BLM recognizes a special-status species as an animal or plant that meets any one of the following criteria: (1) it is federally listed as endangered or threatened; (2) it is federally proposed as endangered or threatened; (3) it is a federal candidate for listing; (4) it is state listed as Rare, Threatened, or Endangered; or (5) it has been designated by the BLM State Director as a sensitive species. Additionally, all List 1B plants in the 6th edition of the California Native Plant Society (CNPS) Inventory that are on BLM lands, and do not meet any of the first four of the special-status species criteria, are considered sensitive species.

California Native Plant Society

The CNPS is a professional society of botanists, biologists, scientists, and other associated professionals who have accumulated a statewide database on California native plant abundance and distribution. The CNPS has developed four categories to describe the status of plants species as: rare, threatened, endangered, or extinct. Although these listings do not afford legal status or protection for the species, agencies consult the list in their planning process for activities that may potentially impact any of these species. The listing categories are as follows:

- CNPS 1A: Plant Species presumed to be extinct in California.
- CNPS 1B: Plant species presumed to be rare, threatened, or endangered in California and elsewhere.
- CNPS 2: Plant species presumed to be rare, threatened, or endangered in California but common elsewhere.
- CNPS 3: Plant species for which more information is needed to be properly categorized, and includes an assemblage of taxa that have been transferred from other lists or have been suggested to CNPS for consideration.
- CNPS 4: Plant species that are not currently threatened or vulnerable but are considered to have limited distribution in California and, because of their uncommon status, should be monitored.

California Natural Diversity Database

The California Natural Diversity Database (CNDDDB) is a computerized inventory of data on the general location and condition of California's rare, threatened, and endangered animals, plants, and natural communities that CDFG maintains. The database also maintains inventories of federally listed T&E species. The CNDDDB includes species that the scientific community feels deserving of an official listing, species proposed for federal listing, U.S. Forest Service (USFS) special-status species, and state candidate species.

Migratory Bird Treaty Act

The USFWS administers and enforces the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 701-718h). Virtually all birds are protected under the MBTA, with four exceptions (California quail, English sparrows, common pigeons, and European starlings). The MBTA controls the taking of these birds, their nests, eggs, parts, or products without obtaining a permit from the USFWS.

U.S. Fish and Wildlife Service Consultation and Conference

Section 7 of the FESA mandates federal agencies that fund, authorize, or carry out actions that may affect listed species or adversely modify their critical habitat must consult with the USFWS. It is the responsibility of the action agency to determine if their actions may affect listed species. If the action agency makes a “may affect” determination, then that agency should initiate an informal consultation with the USFWS. During informal consultation, it will be determined if the action will adversely affect the species, in which case formal consultation will be initiated.

Formal consultation is not required if the USFWS concurs in writing that an action will not adversely affect the species. However, if it is determined that the action may adversely affect T&E species, then formal consultation will be initiated. As part of the formal consultation process, the action agency prepares a biological assessment/evaluation that contains a description of the proposed action, map of the project area, potential effects to listed species or critical habitat, and any relevant reports.

Once completed, formal consultation results in a biological opinion issued from the USFWS to the action agency. The biological opinion will contain the following information: (1) an analysis of the direct, indirect, interrelated, interdependent, and cumulative effects; (2) a determination of whether the action is likely or not likely to jeopardize the continued existence of the species; (3) an incidental take statement for wildlife that will identify the anticipated level of take; (4) mandatory reasonable and prudent measures and the terms and conditions to minimize incidental take; and (5) discretionary conservation recommendations that would further minimize impacts and promote conservation of the species.

When a proposed action affects a species proposed for listing as threatened or endangered, a formal conference (as opposed to a consultation for a listed species) with the USFWS may be required. Unlike biological opinions, recommendations made in conference opinions are advisory and therefore nonbinding. The primary purpose of conferencing is to avoid delay of a proposed action should a species proposed for listing become listed, and to ensure that the proposed action does not jeopardize a species’ recovery potential. Should a species become formally listed prior to implementation of the proposed action, a federal agency is required to informally consult with the USFWS regarding the conference opinion. In the absence of additional new information, USFWS may adopt the formal conference opinion as the biological opinion without the federal agency having to initiate formal consultation.

The BLM request formal consultation on the Threatened Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*) and desert tortoise (*Gopherus agassizii*). BLM has received a Biological Opinion for the preferred alternative in this EIS from the USFWS.

BLM Policies and Plans

The goal of the CDCA Plan is to provide for the use of public lands and resources of the CDCA, including economic; educational; scientific; and recreational uses; as well as protection of environmental, cultural, and aesthetic values of the desert and its future productivity. Carrying forth the management principles from FLPMA, the Plan establishes MUCs for the lands involved and establishes a framework for managing the various resources within these classes. The four uses include: Class C (controlled), Class L (limited), Class M (moderate) and Class I (intensive).

The CDCA incorporates the ISDRA and therefore provides general management guidance for the area. The CDCA Plan decision rationale and summary of resource values for Planning Unit Number 103, which includes the Algodones Dunes Wildlife Habitat Area (WHA), delineated the management goals for protection of rare and endangered wildlife and vegetation; enhancement of wildlife values; and extensive monitoring, especially of potential impacts to these resources from vehicle use.

FLPMA defines an Area of Critical Environmental Concern (ACEC) as an area within public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources; other natural system processes; or to protect human life and safety from natural hazards (USDI, 1980). ACECs are managed for special use, but with special restrictions; and they do not preclude appropriate development if protection of sensitive values can be assumed.

The Plan Area includes a portion of the East Mesa ACEC, located adjacent to the southwest corner of the ISDRA. This ACEC was established on September 2, 1988, to protect the flat-tailed horned lizard (*Phrynosoma mcallii*) and two rare plant species: Thurber's pilostyles (*Pilostyles thurberi*) and Salton milk-vetch (*Astragalus crotalariae*), as well as cultural resources associated with the Lake Cahuilla shoreline.

Habitat Types

The biological resources of the Plan Area includes several dune habitats that support a variety of desert plant and wildlife species, including special-status and endemic species found only at the Imperial Sand Dunes. The primary habitat types associated with the dune system are: Creosote Bush Scrub, Microphyll Woodland, Psammophytic Scrub, and Canal Influenced Vegetation (Westec, 1977; BLM, 1987). Habitat types are depicted in Figure 3.2-1 and described in detail below.

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[View Figure 3.2-1](#)

Habitat types - 99Kb

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Table 3.2-1 lists the plant species that are known or have the potential to occur in the ISDRA. Table 3.2-2 lists the wildlife species that are known or have the potential to occur in the ISDRA.

**TABLE 3.2-1 LIST OF PLANT SPECIES THAT ARE KNOWN
OR HAVE THE POTENTIAL TO OCCUR IN THE ISDRA**

Common Name	Scientific Name	Status
Algodones Dunes sunflower	<i>Helianthus niveus</i> ssp. <i>tephrodes</i>	SE/CNPS-1B
Arrow weed	<i>Pluchea sericea</i>	
Big galleta	<i>Hilaria rigida</i>	
Birdcage evening-primrose	<i>Oenothera deltoides</i>	
Borrego milk-vetch	<i>Astragalus lentiginosus</i> var. <i>borreganus</i>	CNPS-4
Brittlebush	<i>Encelia farinosa</i>	
Brown plume wirelettuce	<i>Stephanomeria pauciflora</i>	
Burrobush	<i>Ambrosia dumosa</i>	
Burrobrush	<i>Hymenoclea salsola</i>	
California ditaxis	<i>Ditaxis serrata</i> var. <i>californica</i>	CNPS-3
California threeawn	<i>Aristida californica</i>	
Carrizo mallow	<i>Sphaeralcea orcuttii</i>	
Cattail	<i>Typha</i> spp.	
Common sandpaper plant	<i>Petlonyx thurberi</i>	
Common sunflower	<i>Helianthus annuus</i>	
Coulter's lyrepod	<i>Lyrocarpa coulteri</i> var. <i>palmeri</i>	CNPS-4
Creosote bush	<i>Larrea tridentata</i>	
Crown-of-thorns	<i>Koeberlina spinosa</i> ssp. <i>Tenuispina</i>	CNPS-2
Desert buckwheat	<i>Eriogonum deserticola</i>	
Desert dicoria	<i>Dicoria canescens</i>	
Desert lily	<i>Hesperocallis undulata</i>	
Desert panicum	<i>Panicum urvilleanum</i>	
Desert starvine	<i>Brandegea bigelovii</i>	

**TABLE 3.2-1 LIST OF PLANT SPECIES THAT ARE KNOWN
OR HAVE THE POTENTIAL TO OCCUR IN THE ISDRA**

Common Name	Scientific Name	Status
Desert thron-apple	<i>Datura discolor</i>	
Desert unicorn plant	<i>Proboscidea altheafolia</i>	CNPS-4
Desert willow	<i>Chilopsis linearis</i>	
Dyebush	<i>Dalea emoryi</i>	
Fairy duster	<i>Calliandra eriophylla</i>	CNPS-2
False daisy	<i>Eclipta alba</i>	
Fennel-leaf pondweed	<i>Potamogeton pectinatus</i>	
Foxtail cactus	<i>Coryphantha alversonii</i>	CNPS-4
Giant reed	<i>Arundo donax</i>	
Giant Spanish needle	<i>Palafoxia arida</i> var. <i>gigantea</i>	BLM/CNPS-1B
Glandular ditaxis	<i>Ditaxis clariana</i>	CNPS-2
Hairy stickleaf	<i>Mentzelia hirsutissima</i>	CNPS-2
Harwood milk-vetch	<i>Astragalus insularis</i> var. <i>harwoodii</i>	CNPS-4
Honey mesquite	<i>Prosopis glandulosa</i>	
Horseweed	<i>Conyza canadensis</i>	
Ironwood	<i>Olneya tesota</i>	
Lineleaf white puff	<i>Oligomeris linifolia</i>	
Longleaf jointfir	<i>Ephedra trifurca</i>	
Mediterranean grass	<i>Schismus barbatus</i>	
Mormon tea	<i>Ephedra trifurca</i>	
Munz's cholla	<i>Opuntia munzii</i>	BLM/CNPS-1B
Orocopia sage	<i>Salvia greatei</i>	BLM/CNPS-1B
Palmer's crinklemat	<i>Coldenia palmeri</i>	
Palo verde	<i>Cercidium floridum</i>	
Peirson's milk-vetch	<i>Astragalus magdalenae</i> var. <i>peirsonii</i>	FT/SE/CNPS-1B
Plicate Coldenia	<i>Tiquilia plicata</i>	
Ribbed cryptantha	<i>Cryptantha costata</i>	CNPS-4

**TABLE 3.2-1 LIST OF PLANT SPECIES THAT ARE KNOWN
OR HAVE THE POTENTIAL TO OCCUR IN THE ISDRA**

Common Name	Scientific Name	Status
Rock nettle	<i>Eucnida rupestris</i>	CNPS-2
Rush milkweed	<i>Asclepias subulata</i>	
Sand food	<i>Pholisma sonorae</i>	BLM/CNPS-1B
Shortspike watermilfoil	<i>Myriophyllum exalbescens</i>	
Small-flowered tamarisk	<i>Tamarix parviflora</i>	
Smoke tree	<i>Psoralea arguta</i>	
Spiny chloracantha	<i>Aster spinosus</i>	
Spotted cadythumb	<i>Polygonum fusiforme</i>	
Thurber's pilostyles	<i>Pilostyles thurberi</i>	CNPS-4
White ratany	<i>Krameria grayi</i>	
White sweetclover	<i>Melilotus albus</i>	
Wiggins' cholla	<i>Opuntia wigginsii</i>	CNPS-3
Wiggins' croton	<i>Croton wigginsii</i>	SR/CNPS-2
Winged cryptantha	<i>Cryptantha holoptera</i>	CNPS-4
Woolly desert marigold	<i>Baileya pleniradiata</i>	

Legend:

FT: Federal threatened

SE: California state endangered

SR: California state rare

BLM: BLM Sensitive Species

CNPS: California Native Plant Society:

1B – Taxa determined to be rare, threatened, or endangered in California and elsewhere

2 – Species rare or endangered in California but common elsewhere

3 – More information on status needed

4 – Species of limited distribution

**TABLE 3.2-2 LIST OF WILDLIFE SPECIES THAT ARE KNOWN
OR HAVE THE POTENTIAL TO OCCUR IN THE ISDRA**

Common Name	Scientific Name	Status
Mammals		
American badger	<i>Taxidea taxa</i>	
Antelope ground squirrel	<i>Ammospermophilus leucurus</i>	
Big brown bat	<i>Eptesicus fuscus</i>	
Black-tailed hare	<i>Lepus californicus</i>	
California leaf-nosed bat	<i>Macrotus californicus</i>	BLM
Cave myotis	<i>Myotis velifer</i>	BLM
Colorado River cotton rat	<i>Sigmodon arizonae plenus</i>	
Coyote	<i>Canis latrans</i>	
Desert cottontail rabbit	<i>Sylvilagus audubonii</i>	
Desert kangaroo rat	<i>Dipodomys deserti</i>	
Desert pallid bat	<i>Antrozous pallidus pallidus</i>	
Desert woodrat	<i>Neotoma lepida</i>	
Greater western mastiff bat	<i>Eumops perotis californicus</i>	
Kit fox	<i>Vulpes macrotis</i>	
Merriam's kangaroo rat	<i>Dipodomys merriami</i>	
Mule deer	<i>Odocoileus hemionus</i>	
Occult little brown bat	<i>Myotis lucifugus occultism</i>	
Raccoon	<i>Procyon lotor</i>	
Roundtail ground squirrel	<i>Spermophilus tereticaudus</i>	
Small-footed myotis	<i>Myotis ciliolabrum</i>	
Spotted bat	<i>Euderma maculatum</i>	BLM
Townsend's big-eared bat	<i>Plecotus townsendii</i>	BLM
Western pipistrel	<i>Pipistrellus hesperus</i>	
White-throated woodrat	<i>Neotoma albigula venusta</i>	

**TABLE 3.2-2 LIST OF WILDLIFE SPECIES THAT ARE KNOWN
OR HAVE THE POTENTIAL TO OCCUR IN THE ISDRA**

Common Name	Scientific Name	Status
Wild burro	<i>Equus asinus</i>	
Yuma hispid cotton rat	<i>Sigmodon hispidus eremicus</i>	
Yuma myotis	<i>Myotis yumanensis</i>	
Yuma mountain lion	<i>Felis concolor browni</i>	
Birds		
American Coots	<i>Fulica americana</i>	
American Kestrel	<i>Falco sparverius</i>	
Arizona Bell's Vireo	<i>Vireo bellii arizonae</i>	SE
Barn Owl	<i>Tyto alba</i>	
Black Tern	<i>Coalitionist niger</i>	
Black-tailed Gnatcatcher	<i>Poliophtila melanura</i>	
Black-throated Sparrow	<i>Amphispiza bilineata</i>	
Burrowing Owl	<i>Athene cunicularia</i>	BLM
Cactus Wren	<i>Campylorhynchus burnnecapillus</i>	
Cliff Swallow	<i>Hirundo pyrrhonota</i>	
Common Yellowthroats	<i>Geothlypis trichas</i>	
Crissal Thrasher	<i>Toxostoma dorsale</i>	
Ferruginous Hawk	<i>Buteo regalis</i>	
Gambel's Quail	<i>Lophortyx gambelli</i>	
Gila Woodpecker	<i>Melanerpes uropygialis</i>	SE
Gilded Northern Flicker	<i>Colaptes auratus chrysoides</i>	
Golden Eagle	<i>Aquila chrysaetos</i>	
Great Horned Owl	<i>Bubo virginianus</i>	
House Finch	<i>Carpodacus mexicanus</i>	
Ladder-backed Woodpecker	<i>Picoides scalaris</i>	

**TABLE 3.2-2 LIST OF WILDLIFE SPECIES THAT ARE KNOWN
OR HAVE THE POTENTIAL TO OCCUR IN THE ISDRA**

Common Name	Scientific Name	Status
LeConte's Thrasher	<i>Toxostoma lecontei</i>	BLM
Lesser Nighthawk	<i>Chordeiles acutipennis</i>	
Loggerhead Shrike	<i>Lanius ludovicianus</i>	
Long-eared Owl	<i>Asio otus</i>	
Marsh Wren	<i>Cistothorus palustris</i>	
Merlin	<i>Falco columbarius</i>	
Mountain Plover	<i>Charadrius montanus</i>	
Mourning Dove	<i>Zenaida macroura</i>	
Northern Harrier	<i>Circus cyaneus</i>	
Peregrine Falcon	<i>Falco peregrinus</i>	SE
Prairie Falcon	<i>Falco mexicanus</i>	
Red-tailed Hawk	<i>Buteo jamaicensis</i>	
Red-wing Blackbird	<i>Agelaius phoeniceus</i>	
Say's Phoebe	<i>Sayornis saya</i>	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	
Southwestern Willow Flycatcher	<i>Empidonax trailii extimus</i>	FE/SE
Turkey Vulture	<i>Cathartes aura</i>	
Vaux's Swift	<i>Chaetura vauxi</i>	
Verdin	<i>Auriparus subulata</i>	
Warbling Vireo	<i>Vireo gilvus</i>	
Western Flycatcher	<i>Empidonax difficilis</i>	
Western Least Bittern	<i>Lxobrychus exilis hasperus</i>	
Western Screech Owl	<i>Otus kennicottii</i>	
Western Yellow Billed Cuckoo	<i>Coccyzus americanus occidentalis</i>	SE

**TABLE 3.2-2 LIST OF WILDLIFE SPECIES THAT ARE KNOWN
OR HAVE THE POTENTIAL TO OCCUR IN THE ISDRA**

Common Name	Scientific Name	Status
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>	
White-faced Ibis	<i>Plegadis chichi</i>	
Wilson's Warbler	<i>Wilsonia pusilla</i>	
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>	
Yellow-rumped Warbler	<i>Dendroica coronata</i>	
Insects		
Andrews' dune scarab beetle	<i>Psuedocotalapa andrewsi</i>	
Brow-tassel weevil	<i>Trigonoscutea brunnotasselata</i>	
Carlson's dune beetle	<i>Anomala carlsoni</i>	
Cheeseweed owlfly	<i>Oliarves clara</i>	
Hardy's dune beetle	<i>Anomala hardyorum</i>	
Amphibians		
Arizona southwestern toad	<i>Bufo microscaphus microscaphus</i>	
Couch's spadefoot toad	<i>Scaphiopus couchi</i>	BLM
San Sebastian leopard frog	<i>Rana yavapaiensis</i>	BLM
Reptiles		
Chuckwalla	<i>Sauromalus obesus</i>	
Colorado Desert fringe-toed lizard	<i>Uma notata</i>	BLM
Desert iguana	<i>Dipsosaurus dorsalis</i>	
Desert tortoise	<i>Gopherus agassizii</i>	FT/ST
Flat-tailed horned lizard	<i>Phrynosoma mcallii</i>	BLM
Rosy boa	<i>Lichanura trivirgata</i>	
Side-blotched lizard	<i>Uta stansburiana</i>	
Sidewinder rattlesnake	<i>Crotalus cerastes</i>	

**TABLE 3.2-2 LIST OF WILDLIFE SPECIES THAT ARE KNOWN
OR HAVE THE POTENTIAL TO OCCUR IN THE ISDRA**

Common Name	Scientific Name	Status
Western whiptail lizard	<i>Cnemidophorus tigris</i>	
Zebra-tailed lizard	<i>Callisaurus draconoides</i>	

Legend:

- FE: Federal listed as endangered
- FT: Federal listed as threatened
- FPT: Federal proposed as threatened
- SE: California state listed as endangered
- ST: California state listed as threatened
- BLM: BLM Sensitive Species

Creosote Bush Scrub

Creosote bush scrub is the most common habitat type in the Colorado Desert and typically occurs on well-drained secondary soils of slopes, fans, and valleys. Within the ISDRA, this habitat type occurs on the relatively stable soils abng the periphery of the dune system. It rarely occurs in the central portion of the ISDRA where shifting dunes are prevalent. This habitat type is generally characterized by relatively barren ground between widely spaced shrubs. To the west of the ISDRA the habitat consists of almost pure stands of creosote bush. On the eastern boundary of the ISDRA, the vegetation is more diverse due to the topographic relief of the dunes and runoff from the nearby Chocolate and Cargo Muchacho Mountains. The creosote bush scrub within the alluvial fan between the desert washes forms a transitional zone with the microphyll woodland habitat type. This habitat type covers approximately 51,831 acres of the entire Plan Area. Characteristic plant species of this habitat type include creosote bush (*Larrea tridentata*), brittlebush (*Encelia farinosa*), and burrobush (*Ambrosia dumosa*). Less abundant species associated with this habitat type include woolly desert marigold (*Baileya pleniradiata*), birdcage evening-primrose (*Oenothera deltoides*), dyebush (*Dalea emoryi*), longleaf jointfir (*Ephedra trifurca*), desert thorn-apple (*Datura discolor*), big galleta (*Hilaria rigida*), white rhatany (*Krameria grayi*), and brown plume wirelettuce (*Stephanomeria pauciflora*).

The wildlife commonly associated with this creosote bush scrub include desert iguana (*Dipsosaurus dorsalis*), zebra-tailed lizard (*Callisaurus draconoides*), western whiptail lizard (*Cnemidophorus tigris*), Red-tailed Hawk (*Buteo jamaicensis*), Mourning Dove (*Zenaida macroura*), Lesser Nighthawk (*Chordeiles acutipennis*), Black-tailed Gnatcatcher (*Poliophtila melanura*), Yellow-rumped Warbler (*Dendroica coronata*), White-crowned Sparrow (*Zonotrichia leucophrys*), big brown bat (*Eptesicus fuscus*), kit fox (*Vulpes macrotis*), roundtail ground squirrel (*Spermophilus tereticaudus*), and black-tailed hare (*Lepus californicus*). Special-status or sensitive wildlife species that may occur in this habitat include desert tortoise, flat-tailed horned lizard, Western Burrowing Owl (*Athene cunicularia*), and LeConte's Thrasher (*Toxostoma lecontei*). The endemic Hardy's dune

beetle (*Anomala hardyorum*) and Carlson's dune beetle (*Anomala carlsoni*) are also found in this habitat type (Hardy and Andrews, 1979).

Psammophytic Scrub

Psammophytic scrub occurs within the interior dune system where active and partially stabilized dunes are found. This habitat type occurs most frequently between active dunes in depressions that are commonly termed "bowls." The soils in these areas consist primarily of fine sand. As the dunes shift from year to year, the bowls generally shift as well. Vegetation is adapted to relatively high sand mobility and deep water percolation. Most of these plant species are capable of rapid growth given favorable soil moisture conditions. This habitat type covers approximately 107,685 acres of the entire Plan Area. Common vegetation of this habitat type include Mormon tea (*Ephedra nevadensis*), desert buckwheat (*Eriogonum deserticola*), desert dicoria (*Dicoria canescens*), common sandpaper plant (*Petalonyx thurberi*), desert panicum (*Panicum urvilleanum*), and plicate coldenia (*Tiquilia plicata*). Additionally, birdcage evening primrose and desert lily (*Hesperocallis undulata*) may occur in the relatively stable dunes that form a transitional zone with the creosote bush scrub habitat.

The wildlife commonly associated with psammophytic scrub include Black-tailed Gnatcatcher, Mourning Dove, Cliff Swallow (*Hirundo pyrrhonota*), coyote (*Canis latrans*), roundtail ground squirrel, desert kangaroo rat (*Dipodomys deserti*), and black-tailed hare. The Colorado desert fringe-toed lizard (*Uma notata*) is the only sensitive wildlife species known to almost exclusively inhabit this area. The endemic Andrew's dune scarab beetle (*Psuedocotalapa andrewsi*) is also found in this habitat type (Hardy and Andrews, 1979).

Microphyll Woodland

To the east of the dune system is a large alluvial fan draining the Chocolate and Cargo Muchacho mountains. The alluvial fan is dissected by numerous ephemeral washes and separated by expansive, level interfluvies. The desert microphyll woodland typically is best developed in the larger drainages where dense stands of a variety of trees occur. Microphyll woodland is generally found along the margins of these dry channels, and around the cul-de-sac sinks of their termini. This habitat type covers approximately 64,906 acres of the entire Plan Area. Vegetation is generally sparse in the open wash areas between the sinks. Typical vegetation of this habitat type include palo verde (*Cercidium floridum*), ironwood (*Olneya tesota*), smoke tree (*Psoralea spinosa*), and to a lesser degree honey mesquite (*Prosopis glandulosa*), desert willow (*Chilopsis linearis*), and desert unicorn plant (*Proboscidea altheaefolia*). Depending upon rainfall, the understory in the plains is generally composed of shrubs and annuals such as desert starvine (*Brandegea bigelovii*), carrizo mallow (*Sphaeralcea orcuttii*), California threeawn, Mediterranean grass (*Schismus barbatus*), lineleaf white puff (*Oligomeris linifolia*), and rush milkweed (*Asclepias subulata*).

The plant diversity and density combined with the micro-topographic variability associated with the washes, accounts for a high diversity of wildlife in the microphyll woodlands. The wildlife commonly associated with this habitat type include side blotched lizard (*Uta stansburiana*), western whiptail lizard, zebra-tailed lizard, sidewinder rattlesnake (*Crotalus cerastes*), Red-tailed Hawk, Gambel's Quail (*Lophortyx gambelli*), Mourning Dove, Ladder-backed Woodpecker (*Picoides scalaris*), Verdin (*Auriparus flaviceps*), Western Flycatcher (*Empidonax difficilis*), Cactus Wren (*Campylorhynchus burnnei capillus*), Warbling Vireo

(Vireo gilvus), Wilson's Warbler (*Wilsonia pusilla*), House Finch (*Carpodacus mexicanus*), Black-tailed Gnatcatcher, White-crowned Sparrow (*Zonotrichia leucophrys*), western pipistrelle bat (*Pipistrellus hesperus*), coyote, kit fox, mule deer (*Odocoileus hemionus*), white-tailed antelope squirrel (*Ammospermophilus leucurus*), black-tailed hare, and desert cottontail (*Sylvilagus audubonii*). Special-status or sensitive wildlife species that may occur in this habitat include desert tortoise, Couch's spadefoot toad (*Scaphiopus couchi*), Gila Woodpecker (*Melanerpes uropygialis*), Western Burrowing Owl, and LeConte's Thrasher.

The wildlife guzzlers installed by the CDFG to partially mitigate impacts from the construction of the New Coachella Canal has created limited herbaceous weedy vegetation within the microphyll woodland. The presence of water and forage around the guzzlers has attracted mule deer from the Chocolate Mountain range. Mule deer are known to use the microphyll woodlands associated with washes as corridors through the North Algodones Dunes Wilderness Area and into the southern part of Mammoth Wash area. It is thought that the Yuma puma (*Felis concolor browni*) has followed the deer into the woodland to prey the mule deer.

Canal-Influenced Vegetation

Both the Coachella and All American Canals support hydrophytic vegetation that is subject to periodic eradication efforts. Although the canals are lined, some seepage occurs and promotes the growth of hydrophytic vegetation. Submergent species include shortspike watermilfoil (*Myriophyllum exalbescens*) and fennel-leaf pondweed (*Potamogeton pectinatus*). Emergent and upland species include cattails (*Typha* spp.), spotted cadythumb (*Polygonum fusiforme*) horseweed (*Conyza canadensis*), spiny chloracantha (*Aster spinosus*), giant reed (*Arundo donax*), small-flowered tamarisk (*Tamarix parviflora*), false daisy (*Eclipta alba*), common sunflower (*Helianthus annuus*), white sweetclover (*Melilotus albus*), and arrow weed (*Pluchea sericea*).

This manmade habitat is utilized by a variety of birds including American Coot (*Fulica americana*), Red-wing Blackbird (*Agelaius phoeniceus*), Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*), Common Yellowthroat (*Geothlypis trichas*), and Marsh Wren (*Cistothorus palustris*). Common mammals of this habitat include black-tailed hare, coyote, raccoon (*Procyon lotor*), and American badger (*Taxidea taxus*).

Special-Status Plant Species

The designation of special-status includes federal- and state-listed species under either the federal or CESA, species proposed for federal listing, federal candidate species, and species designated as sensitive by the California State Director of the BLM (these include all plants on List 1B of the most recent CNPS Inventory of Rare and Endangered Plants of California). The following special-status plant species are known to occur within the Plan Area. Therefore, these species may be affected by activity in the Plan Area. Descriptions of these species are provided below.

Peirson's Milk-Vetch (*Astragalus magdalenae* var. *peirsonii*)

Status

Peirson's milk-vetch was proposed as endangered in 1992 and listed as threatened in 1998 (Federal Register, 1998). It is also recognized as endangered by the State of California and

as a special-status species by the BLM. The CNPS lists the milkvetch as a category 1B (rare, threatened, or endangered in California and elsewhere throughout its range) (Tibor, 2001). Critical habitat has not been designated for this species nor has a recovery plan been prepared.

Life History

Peirson's milk-vetch is a short-lived perennial reaching 8 to 30 inches high. The stems and leaves are pubescent, and the leaves are 2 to 6 inches long. The flowers are dull purple and are arranged in 10 to 17 flowered racemes. The resulting seed pods are 0.8 to 1.5 inches long and are inflated with a triangular beak (Bowers, 1996). This species is able to become reproductive in a single season. It generally completes seed production by June. By July, the plant has dropped many of its leaflets and some entire leaves. This condition may persist from July to October. Seedlings may be present in December, although not in great numbers. Seedlings that germinate by November or December may reach the flowering or fruiting stage by March (Romsper and Burk, 1979).

Seeds of the Peirson's milk-vetch are the largest of any North American milk-vetch species (Barneby, 1964). Within this genus, the large seeds are thought to be better adapted to active dunes than small seeds. This may be due to the larger food reserves enabling them to emerge even when deeply buried (Bowers, 1996). Harper et al. (1970), however, noted that there is a trade-off between seed size and seed numbers such that large-seeded plants typically produce fewer seeds. Peirson's milk-vetch seeds are transported within inflated pods that are dispersed by winds across the dunes where they may come to rest within vegetation or depressions. Many seeds fall prey to members of the seed beetle family, Bruchidae. This contributes to a high mortality of seeds and reduced seed crop for this species (Romsper and Burk, 1979).

Peirson's milk-vetch habitat consists of sandy depressions at the base of high dunes and lower established dunes. This species does not extend many lateral roots and, therefore, is more vulnerable if the main stem is broken. The vulnerability of the adult plants in conjunction with the period of seedling establishment during the cooler months, which coincides with the higher usage of the dunes by OHVs, makes this species sensitive to impacts (Romsper and Burk, 1979).

Distribution and Occurrence within the Plan Area

Peirson's milk-vetch, an obligate psammophyte, grows on the slopes and hollows of windblown dunes in the Colorado and Sonoran deserts. According to Barneby (1964) and Wiggins (1980), it is known from the Imperial Sand Dunes. Additionally, the milk-vetch is known to occur in the Gran Desierto in Sonora, Mexico (Felger, 2000). Although it has been reported from Borrego Valley, San Diego County, California, it has not been observed there for several decades (Tibor, 2001).

The only location where the Peirson's milk-vetch is currently known to occur within the United States is the Imperial Sand Dunes, which supports between 75 and 80 percent of all of the world's known colonies of the species (Federal Register, 1998). The milk-vetch is associated with psammophytic scrub habitat within these dunes. The plant is generally scattered throughout the dune complex with a higher abundance of the plant along the central and western aspect of the Imperial Sand Dunes. Figure 3.22 depicts the distribution and abundance of this species at the ISDRA.

Threats

OHV use and associated recreational development have been described as the primary threat to Peirson's milk-vetch through destruction of individual plants and habitat (Luckenbach and Bury, 1983; ECOS, 1990; Federal Register, 1998). However, recent monitoring indicates that the response of Peirson's milk-vetch is closely tied to precipitation. It was most abundant in years with the highest rainfall and least abundant in years with the lowest rainfall. Response of Peirson's milk-vetch was similar in areas both open and closed to OHV use. (Willoughby 2001)

Algodones Dunes Sunflower (*Helianthus niveus* ssp. *Tephrodes*)

Status

The Algodones Dunes sunflower was listed as endangered by the State of California in November 1979. It is recognized by the CNPS as 1B (rare, threatened, or endangered in California and elsewhere throughout their range).

Life History

The Algodones Dunes sunflower (also commonly referred to as the Algodones sunflower and the silver-leaved dune sunflower) is a perennial herb and native to California. A dense covering of fine hairs protects the plant from excess light and heat, (a common dune plant adaptation), and gives the leaves a silvery appearance (BLM, 1987). The Algodones Dunes sunflower is a relatively long-lived species; and, once established, it is able to survive periods of below-average precipitation. Felger (2000) reports that the species is 1.5 to over 3 feet tall, occasionally to 9 feet. Like Peirson's milk-vetch, Algodones Dunes sunflower has relatively large seeds and is fast growing.

Distribution and Occurrence within the Plan Area

The Algodones Dunes sunflower tends to grow in areas with active sand movement, such as on the lower portion of dune slip faces. The Algodones Dunes sunflower has been observed thriving where no other vegetation occurs on actively moving sand; but it also can be frequently associated with swales where concentrations of other vegetation are found (TOA, 2001). Figure 3.2-3 depicts the distribution and abundance of this species at the ISDRA.

Threats

At the ISDRA, the primary threat to Algodones Dunes sunflower is destruction of individual plants and habitat by OHV use and associated recreational development.

Wiggins' Croton (*Croton wigginsii*)

Status

Wiggins' croton was recognized by the State of California as rare in January 1982 (CNDDB, 2001). It is also recognized by the CNPS as Category 2 (plants rare, threatened, or endangered in California, but common elsewhere in their range).

Life History

Wiggins' croton is a many branched, woody perennial, which grows from 20 to 30 inches high.

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Peirson's Milk-vetch Distribution - 126Kb

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[View Figure 3.2-3](#)

Algodones Dunes sunflower distribution - 89Kb

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Distribution and Occurrence within the Plan Area

This species is native to California, Arizona, and from Baja California and Sonora, Mexico. In the Imperial Sand Dunes it is found within psammophytic scrub habitat and prefers stabilized and partially stabilized desert dune systems (CNDDDB, 2001). It most often grows on south or southeast slopes of basins, and sometimes grows farther toward the floor of the basin (TOA, 2001). Figure 3.2-4 depicts the distribution and abundance of this species at the ISDRA.

Threats

At the Plan Area, the primary threat to Wiggins' croton is destruction of individual plants and habitat by OHV use and associated recreational development.

Giant Spanish Needle (*Palafoxia arida* var. *gigantea*)

Status

The giant Spanish needle is recognized by the BLM as a sensitive species. The CNPS lists the giant Spanish needle as Category 1B (rare, threatened, or endangered in California and elsewhere throughout their range).

Life History

Giant Spanish needle is a fast-growing annual found on active sand dunes. This dune species tends towards gigantism, with larger and more robust plants than related nondune taxa (Felger, 2000). Felger (2000) reports it growing from 2 to 5 feet tall.

Distribution and Occurrence within the Plan Area

This species is native to California and is found from California to Arizona and in Sonora, Mexico (BLM, 1987; TOA, 2001). Once established, giant Spanish needle is able to survive periods of below-average precipitation. Abundance of giant Spanish needle in a given year is almost unrelated to the precipitation of the immediately preceding growing season (BLM, 2001a). As a short-lived flowering perennial, it frequently occurs within the Imperial Sand Dunes in sites with milk-vetch and croton (BLM, 2001a; TOA, 2001). Most of its occurrences were south of the large enclosure south of I-8 (TOA, 2001). Figure 3.2-5 depicts the distribution and abundance of this species at the ISDRA.

Threats

At the Plan Area, the primary threat to giant Spanish needle is destruction of individual plants and habitat by OHV use and associated recreational development.

Sand Food (*Pholisma sonorae*)

Status

This species is recognized by the BLM as a sensitive species. The CNPS lists this species as Category 1B (rare, threatened, or endangered in California and elsewhere throughout their range).

Life History

This parasitic, perennial herb is native to California. As a root parasite, most of the plant is buried in the sand and only the flower heads are visible aboveground. This species is parasitic on *Tiquilia plicata*, *Eriogonum deserticola* (Armstrong, 1980) and possibly also on *Croton wigginsii* (Westec, 1977). The point of connection with the host plant may be more than a yard below the surface. Sand food stems are succulent and store copious amounts of

water. During times of drought, it may provide moisture to the host plant. It is visible aboveground for only a short time. Each spring, a flowering stem is sent to the surface by the sand food, which produces a disk-shaped inflorescence with hundreds of tiny pink flowers. Sand deflation does not seem to affect its flowering (TOA, 2001).

The primary habitat of sand food is open, sandy flats and sandy or stony desert washes within creosote bush scrub (CNDDDB, 2001). Sand food was found at scattered locations during the Thomas Olsen and Associates (TOA) survey, most commonly in the Gecko Road area and the area just south of the large interim closure. It was generally in somewhat flat areas, but its appearance was difficult to predict, as there were many sites with hosts but without sand food (TOA, 2001). Figure 3.2-6 depicts the distribution and abundance of this species at the ISDRA.

Threats

At the Plan Area, the primary threat to sand food is destruction of individual plants and habitat by OHV use and associated recreational development. Additionally, impacts to host plants would have a negative effect on the sand food population (BLM, 2001a).

Relevant Reports

BLM Monitoring Report

In 1998, the BLM initiated monitoring of the six rare plant species. Monitoring was conducted in spring and summer 1998, spring 1999, spring 2000, and spring 2001. Results of the spring 2001 survey are not currently available. Utilizing the Westec study methodology (discussed later in this section), the dunes were divided into four geographic strata, 34 of the original 66 transects were randomly selected from those strata and divided into cells. Numbers of rare plants were then recorded within 10 to 15 meters or fixed parallel transects in each of the cells. Abundance classes were assigned for each species in a cell (BLM, 2000a). This report compared the responses of the six rare plant species, as measured by abundance class data, over all 4 years of monitoring (1977 and 1998-2000). The study concluded that plants are at least as abundant and widespread in the entire dune system as they were in 1977. This report also noted that healthy populations of all six species remain in areas open to recreation, although the aboveground expression of populations of some of these species dramatically fluctuates with precipitation (BLM, 2001a).

The following is a species-by-species summary of the BLM monitoring study:

Peirson's milk-vetch. Abundance was closely tied to precipitation throughout the four years of monitoring. Species abundance was highest in 1998, second highest in 1977, third highest in 1999, and lowest in 2000. This mirrors the ranking of the four growing seasons in terms of average precipitation. Recruitment was possibly high in 1998 and low to nonexistent in 1999 and 2000. Responses of this species were similar in both the closed and open recreation areas across all 4 years of monitoring.

Algodones Dunes sunflower. Abundance increased significantly between 1977 and 1998. This increase is the result of a large increase in the values for the open area between 1977 and 1998. There were only slight decreases in abundance for 1999 and 2000. Between 1977 and 1998, the species declined in abundance in the closed area. This could be the result of lower recruitment of individuals into the population in the

[View figure 3.2-4](#)

Wiggins' Croton Distribution - 82Kb

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[View Figure 3.2-5](#)

Giant Spanish Needle Distribution - 96Kb

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[View Figure 3.2-6](#)

Sand Food Distribution - 73Kb

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closed area. With the exception of 1977, the responses in the open and closed areas were parallel.

Wiggins' croton. Abundance in 1977 was about half of 1998. Abundance for 1999 and 2000 was similar to 1998. This increase may represent a real increase in the population size of this species in the dune system. Most of this increase was detected in the open area. Comparison of abundance in the closed and open areas indicate that except for 1977, when abundance was similar for both areas, the abundance for the rest of the years showed that open areas consistently had higher abundance.

Giant Spanish needle. Abundance was highest in 1998, the best rainfall year. However, abundance was second highest in 2000, the lowest rainfall season. The reason for the relatively high abundance in 2000 was unclear. Based on rainfall, it was expected that 1977 would have the second highest abundance. Instead, 1977 abundance ranked third and 1999 ranked last. The abundance between closed and open areas is very similar for 1977, 1998, and 1999, with 2000 having more abundance in the closed area. Data also appear to indicate that this species is more common in the northern part of the dunes, independent of whether the area is closed or open.

Sand food. Abundance increased between 1977 and 2000, with the highest abundance registered for 2000, the worst rainfall year. The reason for the relatively high abundance in 2000 was unclear. The second highest abundance was 1998, and 1999 abundance was very close to 1998. Abundance for this species in closed and open areas was the same for 1999. In 1998 and 2000, the values for the closed areas were higher than open areas. However, this determination may have been due to a limitation in the survey method. In 1998, 1999, and 2000, transects were conducted on foot in the closed area, while those in the open area were run from a dune buggy. Additionally, in 1977, closed areas had lower abundance than open. This, too, may have been due to a limitation in the survey method. The 1977 survey utilized a helicopter in closed areas, not the ideal survey method to detect this cryptic plant.

Borrogo milk-vetch. Abundance was essentially the same in 1977 and 1998. No plants at all were found in either 1999 or 2000, a statistically significant decline from 1998 and 1977 levels. Presumably, precipitation was insufficient for growth and establishment in 1999 and 2000. No comparison of abundance between closed and open areas was made because this taxon did not occur in the closed area.

Thomas Olsen and Associates Report

In 2001, the American Sand Association (ASA) retained the services of Thomas Olsen and Associates to provide an independent assessment of the abundance, distribution, and life history of the Peirson's milk-vetch at the Imperial Sand Dunes. Additional distribution and abundance data were also collected on five other rare plants. As opposed to the BLM monitoring study, this study was designed to obtain an actual census of Peirson's milk-vetch. The other five plant species were also counted when they were observed with Peirson's milk-vetch. A nonprobabilistic survey was employed to determine areas for survey. As a first step in the survey methodology interviews of OHV users, BLM staff, and Border patrol officers who were familiar with the project area were conducted to determine locations of Peirson's

milk-vetch. The second step included a general reconnaissance of the entire dune areas outside the interim closures and wilderness area. The third step consisted of actual intensive surveys of specific areas based on professional knowledge of habitat requirements of species, reconnaissance information, and feedback from the interviewees (TOA, 2001).

The team surveyed by foot and rail within the open areas. When a substantial number of plants were detected, the area was designated as a "site." A number was assigned to each site, and a team of two to three biologists conducted a census of the plants and recorded other habitat characteristics. Areas that were too small to circumscribe on a map or contained a small number of plants were designated as "points." Additionally, the team conducted an aerial survey by helicopter of the interim closure areas. Parallel transects or concentric circles of decreasing diameter were flown within each of the closure area boundaries south of SR-78 and a portion of the North Algodones Dunes Wilderness Area north of the highway.

The survey produced a total of 61 sites and 66 points containing one or more of the rare plants within the dunes. Notable concentrations were found in several areas, which included: (1) the southern portion of the dunes near the international border and west of Buttercup Valley; (2) the area near Patton Valley, south of the large closure and west of the dune peaks; (3) between the small central closure and the large central closure; and (4) the east side of the small central closure.

The general conclusion from this study was that the distribution of the rare plants is dependent on the geomorphology of the dunes, and they tend to be concentrated in areas where there is relative substrate stability. These are areas located generally on the lee side of the large dunes, in areas where the surface gradually slopes upwards from deep or shallow basins at the base of steep slipfaces. The study also concluded that less than 1 percent of the plants had been affected by OHVs (TOA, 2001).

The following is a species-by-species summary of the TOA study:

Peirson's milk-vetch. A grand total of 71,926 individual plants were recorded. Occurrences were clustered in general areas, and no milk-vetch was detected in large portions of dunes. Generally, they were found west of the primary dunes in the open areas. The greatest number of plants found at a single site was 3,994 in the southern border area.

Algodones Dunes sunflower. This species was detected in 31 of 61 Peirson's milk-vetch sites, for a total count of 1,289, scattered throughout the primary dunes. The greatest estimated number of plants at a single site was 431 individuals.

Wiggins' croton. This species was found at 52 of 61 Peirson's milk-vetch sites for a total count of 3,614. They were found evenly distributed throughout the open areas, sharing generally the same habitat as the milk-vetch.

Giant Spanish needle. This species was found at 47 of 61 Peirson's milk-vetch sites for a total count of 4,191 individuals. Most of the occurrences were south of the Central Closure #2 and south of I-8.

Sand food. A total of 65 plants were found at nine scattered sites and points, most notably in the Gecko Road area and the area just south of Central Closure #2.

Borrego milk-vetch. The preferred habitat at the Plan Area for the Borrego milk-vetch, which is on the eastern portion of the dune system, was generally not surveyed during this study. However, a single site with 15 individuals was detected on the eastern edge of the dunes.

Westec Services, Inc. Report

Westec Services, Inc., carried out the initial survey of rare plants in the Imperial Sand Dunes under contract with the BLM in 1977. They surveyed for eight rare plants, of which seven were found. To determine species abundance, Westec surveyed 66 west-east, randomly selected parallel transects that were segmented into cells 0.45-mile per side (Westec, 1977). It must be noted that the Westec study was not specifically designed to study OHV impacts, and the conclusions are based on a single-year study. The study offered the following conclusions:

- Seedlings of rare species could not be found in “high impact areas,” while seedlings of these species were abundant in other areas of the dunes.
- Intensity of OHV use in the dunes appears to be the key factor in impacting dune vegetation. Greatest impact occurs within the heaviest use areas.
- Lower level of “secondary impact” occurs throughout the dunes. However, this sporadic impact appears to decrease with increasing distance from the center of high impact areas.
- Despite the observed impacts, healthy reproducing populations of all rare plant species occurred within the dunes.

Luckenbach and Bury Report

In 1983, the Luckenbach and Bury study conducted at the Imperial Sand Dunes is perhaps one of the most significant studies that systematically addressed OHV impacts to the dune biota. However, the study has limited utility toward drawing conclusions with respect to rare plants since most of the study plots had none of these species in them. Another limitation is that the study compared sites with heavy OHV use to sites with no OHV use, which does not allow inferences to be made to less heavily used OHV sites. Also, what data were collected showed that Peirson’s milk-vetch density and cover were actually higher in the OHV area than in the closed, control area. The following are the conclusions of this study:

- OHV activities in the dunes are highly detrimental to dune biota.
- Both herbaceous and shrubby perennial vegetation is reduced greatly in areas where OHVs operate.
- Most commonly, plants were destroyed by direct destruction or damage to root systems of psammophytic shrubs.
- Changes due to OHV impacts may result in substrate changes, such as compaction, reduced porosity, altered thermal structure, and reduced moisture content, although these effects were not tested.

ECOS, Inc. Report

In 1990, Ecos, Inc. was contracted by BLM to perform habitat characterization and rare plant species analysis as well as design a long-term monitoring plan. This study did not count the total number of plants; instead, they analyzed population fitness by scoring a set of variables for each species. This study concluded that substantially less vegetative cover and species diversity was observed. However, a limitation of this study is that it was conducted in a year of severe drought and study sites in the open OHV area were located relatively close to OHV staging areas. Therefore, the observations on OHV impacts to plant species do not apply to most of the OHV open area.

Special-Status and Endemic Wildlife Species

The designation of special-status includes federal- and state-listed species under either the federal or California ESA, species proposed for federal listing, federal candidate species, and species designated as sensitive by the California State Director of the BLM. The following special-status wildlife and endemic beetle species are known or may occur within the Plan Area. Therefore, these species may be affected by the planned action. Descriptions of these species are provided below.

Desert Tortoise (*Gopherus agassizii*)

Status

The Mojave population of the desert tortoise was emergency listed by the USFWS as an endangered species in 1989. Under final rule, the species was federally listed as threatened in 1990 (Federal Register, 1990). The State of California listed this species as threatened in 1989. The BLM recognizes the desert tortoise as a special-status species. Currently, the BLM is completing or has recently completed several management plans including the West Mojave Coordinated Management Plan (WEMO), Northern and Eastern Mojave Coordinated Management Plan (NEMO), and Northern and Eastern Colorado Coordinated Management Plan (NECO) (BLM, 2001a). An important focus of these plans is the management of the Mojave population of the desert tortoise and its habitat on BLM lands in California. A final recovery plan was completed by the USFWS in 1994 for the Mojave population of the desert tortoise (USFWS, 1994). Critical habitat for the Mojave population was also designated by the USFWS in 1994 (Federal Register, 1994). The Chuckwalla Bench Critical Habitat Unit for this species is located approximately 20 miles northeast of the ISDRA.

Life History

The desert tortoise is a large herbivorous terrestrial reptile. It has a high domed shell that may reach a length of 15 inches or more. This species has stocky, elephantlike limbs and a short tail. The carapace (upper shell) is brown; and the plastron (lower shell) is yellow in color, both exhibiting prominent growth lines. Adult males can be distinguished from females by the concavity in their plastron. Adult males also have larger chin glands and a longer tail and gular horn than females (Stebbins, 1985).

The adult desert tortoise is active from mid-March or April to November, and during the winter months is dormant in underground burrows (Luckenbach, 1982; Zimmerman et al., 1994). Desert tortoises will congregate in winter dens during colder weather, then spread out to nearby areas during moderate weather in the spring and fall and retreat into short individual burrows or under shrubs during more the extreme heat of the summer (Woodbury and Hardy, 1940). During the active period, desert tortoises may establish home ranges of

approximately 1 square mile. Tortoises feed on a wide variety of herbaceous plants, including cactus, grasses, and annual flowering plants (USFWS, 1994).

Adult desert tortoises reach sexual maturity at 15 to 20 years of age. Mating occurs in the spring (April and May) and the fall (August and September) with nesting and egg laying occurring from May to July (Rostral et al., 1994). The female tortoise lays her eggs in a hole approximately 3 to 4 inches deep that is dug near the mouth of a burrow. Following egg laying the female covers the eggs with soil (Woodbury and Hardy, 1948). Clutch size ranges from 2 to 14 eggs with an average of 5 to 6 eggs (Luckenbach, 1982). Desert tortoise eggs typically hatch from August through October. These hatchlings are provided a food source in the form of an egg yolk that is assimilated into the underside of the shell. This yolk sac will sustain the animal for up to 6 months. The hatchling desert tortoise will go into hibernation in the late fall, but can be active on warm sunny or rainy days.

Distribution and Occurrence within the Plan Area

The desert tortoise is widely distributed throughout the Mojave, Sonoran, and Colorado deserts. It occupies arid regions from southern Nevada and extreme southwestern Utah to northern Sinaloa, Mexico; southwestern Arizona west to the Mojave Desert and the eastern side of the Salton Basin, California (Stebbins, 1985).

In the Mojave region, desert tortoises are primarily associated with flats and bajadas with soils ranging from sand to sandy-gravel, but firm enough for the tortoise to construct burrows (USFWS, 1994). In California, the desert tortoise is most commonly found in association with creosote bush scrub with intershrub space for growth of herbaceous plants. However, it may also occur in saltbush scrub, desert wash, desert scrub, and Joshua tree woodlands. The desert tortoise is found from below sea level to elevations of 5,000 feet in California. The most favorable habitats occur at elevations of approximately 1,000 to 3,000 feet.

Desert tortoise habitat in the general vicinity of the ISDRA has been degraded and fragmented by OHV and camping use, agricultural development, utility corridors, and the construction and maintenance of the railroad and All American Canal. Along the eastern boundary of the ISDRA, the creosote bush scrub habitat and the desert washes north and south of SR-78 provide marginal suitable habitat for the desert tortoise. BLM and Border Patrol officials have observed desert tortoises in the general vicinity of and crossing Vista Mine and Ted Kipf Roads. To date, limited surveys for desert tortoise have been conducted at the ISDRA. Limited desert tortoise distribution and abundance data currently exist. The BLM proposes to conduct surveys to collect such data on this species at a latter date.

Threats

The decline in the desert tortoise population is attributed primarily to habitat loss, degradation, and fragmentation resulting from increased human population and urbanization in the desert and arid regions of the southwestern United States. The increase in urbanization, collection of tortoises for pets, overgrazing, landfills, subsidized predation, including predation by ravens, highway mortality, vandalism, agriculture, fire, drought, and OHV use all have contributed to the decline of the tortoise in the wild (Luckenbach, 1982; Federal Register, 1990). Another important reason for the decline of the desert tortoise is the introduction of an upper respiratory tract disease (URTD) into many of the wild populations (Berry, 1986). This disease was thought to have been introduced through the illegal release of captive desert tortoises into the wild (USFWS, 1994).

Flat-tailed Horned Lizard (*Phrynosoma mcalli*)

Status

In California, the flat-tailed horned lizard was designated a sensitive species by the BLM in 1980. In 1988, a petition was submitted to the CFGC to list the species as endangered. In 1989, the commission voted against the proposed listing. In 1993, the USFWS published a proposed rule to list the flat-tailed horned lizard as a threatened species (Federal Register, 1993). No final rule on the proposed listing was issued. In 2001, the USFWS published a notice of reinstatement of the 1993 proposed listing of the flat-tailed horned lizard as a threatened species and reopened the comment period on the proposed rule (Federal Register, 2001). Recently, USFWS withdrew the proposal to list the flat-tailed horned lizard.

Currently, the State of California and BLM recognize the flat-tailed horned lizard as a species of special concern and special-status species, respectively.

Life History

The flat-tailed horned lizard has the typical flattened body shape of horned lizards. It is distinguished from other species in its genus by its dark ventral stripe, lack of external openings, broad flat tail, and comparatively long spines on the head (Funk, 1981). The flat-tailed horned lizard has two rows of fringed scales on each side of its body. The species has cryptic coloring, ranging from pale gray to light rust brown dorsally and white or cream ventrally with a prominent umbilical scar. The only apparent external difference between males and females is the presence of enlarged postanal scales in males. Maximum snout-vent length for the species is 3.3 inches (Muth and Fisher, 1992).

Flat-tailed horned lizards escape extreme temperatures by digging shallow burrows in the loose sand. Adults are primarily inactive from mid-November to mid-February. Juvenile seasonal activity is often dependent on temperature fluctuations. Breeding activity takes place in the spring with young hatching in late July and September. The diet of horned lizards typically consists of greater than 95 percent native ant species, mostly large harvester ants (*Pogonomyrmex* spp.).

Distribution and Occurrence within the Plan Area

The flat-tailed horned lizard is found in the low deserts of southwestern Arizona, southeastern California, and adjacent portions of northwestern Sonora and northern Baja. In California, the flat-tailed horned lizard is restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial Counties. The majority of the habitat for the species is in Imperial County (Turner et al., 1980).

The lizard is known to inhabit sand dunes, sheets, and hummocks, as well as gravelly washes. The species is thought to be most abundant in creosote bush scrub habitat. However, this species may also be found in desert scrub, desert wash, succulent shrub/alkali scrub, sparsely vegetated sandy flats, desert pavement, and rocky slopes. They are typically found in dry, hot areas of low elevation (less than 800 feet).

Suitable habitat for the flat-tailed horned lizard is found east of the project area from Ogilby Road and extending south to the All-American Canal (FERC, 2001). Monitoring conducted as part of the North Baja Pipeline Project in 2000 and 2001 detected flat-tailed horned lizard in this area (FERC, 2001). Rado noted that sand sheets extending east from the sand dunes provide favorable habitat for about 1 mile northwards from the intersection of Ogilby Road and I-8 (Rado, 1995).

The surveys conducted by the BLM in 1978, 1979, and 1980 reveal that the highest abundance of this species occurs southwest of the ISDRA in the East Mesa ACEC. Low abundance of this species was detected on the eastern and western boundaries of the sand dunes, predominantly in the creosote bush scrub habitat. Although this species is known to occur in the central Imperial Sand Dunes, the habitat is considered to be marginal because of the lack of suitable soil structure required to support their predominant prey: harvester ants (BLM, 2001b). Figure 3.2-7 depicts the distribution and abundance of this species at the ISDRA.

Threats

Human activities have resulted in the conversion of approximately 34 percent of the historic habitat of the flat-tailed horned lizard. The decline in the flat-tailed horned lizard population is primarily due to impacts from utility lines, roads, geothermal development, sand and gravel mining, OHV use, waste disposal sites, military activities, pesticide use, and Border Patrol activities (Foreman, 1997). The Argentine ants (*Linepithema humile*), an invasive species, was considered as a threat and dismissed. The climate at the dunes is too dry for the Argentine ants to survive.

Colorado Desert Fringe-Toed Lizard (*Uma notata*)

Status

The Colorado Desert fringe-toed lizard is a federal candidate for listing and State of California species of special concern. It is also recognized by the BLM as a sensitive species.

Life History

The fringe-toed lizard is a flattened, sand-dwelling lizard with characteristic fringed toes. The species is cryptic in color ranging from a sand color dorsally and white or cream ventrally. It also has pronounced dark lines on the throat, underside of the tail, and sides of the belly. The sides of the belly may also have vivid orange streaks especially during the breeding season. The only apparent external difference between males and females is the presence of enlarged postanal scales in males. Maximum snout-vent length for the species is 4.8 inches (Stebbins, 1985).

This species escapes extreme temperatures by digging shallow burrows in the loose sand deposits, often in primary and secondary dunes at the base of bushes in psammophytic and creosote bush scrub habitats. Adults are primarily inactive from mid-November to mid-February. Juvenile seasonal activity is often dependent on temperature fluctuations. Breeding activity takes place in the spring. This species primarily feeds on insects, but occasionally eats other lizards. They are also known to feed on buds, leaves, and flowers of plants.

Distribution and Occurrence within the Plan Area

The range of this species is from the vicinity of the Salton Sea and Imperial Sand Dunes, south across the Colorado River Delta to the Gulf of California and Tepopca Bay in Baja California. The fringe-toed lizard is largely restricted to fine, loose, wind-blown sand of dunes, flats, riverbanks, and washes. Vegetation is usually sparse, consisting of creosote bush or psammophytic scrub. The Colorado Desert fringe-toed lizard is known to occur

within the Plan Area. To date, the BLM has conducted several surveys for fringed-toed lizards at the ISDRA. Figure 3.2-8 depicts the distribution and abundance of this species at the ISDRA.

Threats

Threats to Colorado fringe-toed lizard populations are similar to those described for the flat-tailed horned lizard.

Couch's Spadefoot Toad (*Scaphiopus couchi*)

Status

Couch's spadefoot toad is recognized by the State of California as a species of special concern and as a sensitive species by the BLM.

Life History

The Couch's spadefoot toad is distinguished from true toads by its catlike eyes, single sharp-edged black spade on its hind foot, teeth in the upper jaw, and rather smooth skin. The pupils of this species are vertical in bright light and round at night. Couch's spadefoot toad is greenish yellow to brownish yellow with an irregular network of dark blotches dorsally and generally whitish ventrally. Males generally have a dusky throat, dark nuptial pads on the innermost front toes, and are often more greenish than the females. Their voice is a plaintive cry or groan, declining in pitch like the anxious bleat of a sheep (Stebbins, 1985).

They are generally active at night during spring and early summer rains and can be found in temporary desert rain pools with an insect food base available. Breeding is primarily from May-September during rainfall periods. They require friable soil for burrowing where they typically spend up to 11 months underground until sufficient rainfall has occurred.

Distribution and Occurrence within the Plan Area

The Couch's spadefoot toad occupies a variety of habitat types, including desert dry wash woodland, creosote bush scrub, desert riparian, palm oasis, desert succulent scrub, shortgrass plains, mesquite savannah, and alkali sink scrub. In California, the Couch's spadefoot toad occurs within Imperial, Riverside, and San Bernardino Counties between 500 to 3,000 feet elevation. Scattered populations are known between Amos and Ogilby on the eastern boundary of the Imperial Sand Dunes. This species may occur in the microphyll woodland, desert dry wash, and creosote bush scrub habitats in the eastern portion of the Plan Area. To date, the BLM has not conducted any surveys for this species at the ISDRA. Therefore, Couch's spadefoot toad distribution and abundance data do not currently exist.

Threats

No specific threats to Couch's spadefoot toad are known. Potential threats to this species include loss, fragmentation, or degradation of habitat.

Gila Woodpecker (*Melanerpes uropygialis*)

Status

The Gila Woodpecker is listed as endangered by the State of California. It is also recognized by the BLM as a special-status species.

Life History

The Gila Woodpecker is a "zebra-backed" woodpecker. The males have a red cap on top of their head. The head and under parts are typically gray-brown. The Gila Woodpecker feeds

[View Figure 3.2-7](#)

Flat Tailed Horned Lizard Distribution - 117Kb

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[View Figure 3.2-8](#)

Colorado Fringe-toed Lizard Distribution - 77Kb

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mainly on insects, mistletoe berries, cactus fruits, corn; and occasionally contents of galls on cottonwood leaves, bird eggs, acorns, and cactus pulp. The species breeds from April through July, with peak activities in April and May. They are cavity nesters and may use abandoned owl cavities.

Distribution and Occurrence within the Plan Area

The Gila Woodpecker's preferred habitat is mesquite-dominated microphyll woodlands and desert dry washes. They also occupy orchard vineyards (specifically, date palm groves) and urban areas (shade trees). This species was formerly prolific throughout the Imperial Valley. Due habitat degradation, most of the current populations are concentrated in the Brawley, California area (CDFG, 2001). Brawley is located approximately 20 miles west of the Plan Area. At the Plan Area, this species may occur in the microphyll woodland habitat on the eastern side of the Imperial Sand Dunes. To date, the BLM has not conducted any surveys for this species at the ISDRA. Therefore, Gila Woodpecker distribution and abundance data do not currently exist.

Threats

Loss, fragmentation, or degradation of riparian woodland to development has displaced the woodpecker from some areas. Additionally, European Starlings are competing with this species for nest cavities (CDFG, 2001).

Burrowing Owl (*Athene cunicularia*)

Status

This species is recognized by the State of California as a species of special concern and as a sensitive species by the BLM.

Life History

This species of owl is identified by its barred and spotted plumage, white chin stripe, round head, and stubby tail. The Western Burrowing Owl is a diurnal (daylight active) species that is non-migratory in this portion of its range. Burrowing Owls are opportunistic feeders, preying upon arthropods, small mammals, birds, and sometimes reptiles and amphibians. This species breeds from late April through July in the Imperial Valley. Burrowing owls are subterranean nesters, typically found using burrows made by small mammals such as ground squirrels and badgers. The Burrowing Owl commonly perches on fence posts or on top of mounds outside its burrow.

Distribution and Occurrence within the Plan Area

Found throughout much of the western United States, this species inhabits open, dry grasslands, deserts, agricultural areas, and scrublands characterized by low growing vegetation. These owls also occupy open areas of airports, golf courses, and vacant urban lots. They are generally found at elevations ranging from 200 feet below sea level to 9,000 feet. Throughout the Imperial Valley, burrowing owls are frequently found along unlined agricultural canals and drainages. It is typically found in low densities in desert habitats, but can occur in much higher densities near agricultural lands where rodent and insect prey is more abundant. There are no known records of this species at the Plan Area. The psammophytic habitat is not suitable for this species. However, the creosote bush scrub and microphyll woodland habitats on the eastern boundary of the Imperial Sand Dunes are suitable for Burrowing Owls. To date, the BLM has not conducted any surveys for this

species at the ISDRA. Therefore, Burrowing Owl distribution and abundance data do not currently exist.

Threats

Threats to this species include habitat degradation, disturbance to nesting and roosting sites, and pesticides and other contaminants/toxins. Agricultural practices that reduce the ground squirrel population result in a reduction of the available nesting and roosting sites for the Burrowing Owl.

LeConte's Thrasher (*Toxostoma lecontei*)

Status

This species is recognized by the State of California as a species of special concern and as a sensitive species by the BLM.

Life History

The LeConte's Thrasher is pale gray-brown in color, with a long tail, and recurved bill. They typically run before taking flight. LeConte's Thrashers feed on seeds, insects, small lizards, and other small vertebrates. This species requires areas with an accumulated leaf litter that serves as cover for its primarily arthropod prey. Only during breeding activities, when males sing from exposed perches, are they relatively easy to detect.

Distribution and Occurrence within the Plan Area

LeConte's Thrasher is a desert resident of areas with sparse desert scrub, alkali desert scrub, and desert succulent scrub habitats with open desert washes (CNDDDB, 2001). It is found year-round throughout much of the Mojave and Colorado Deserts of California. Population densities of this species are among the lowest of passerine (perching) birds, estimated at less than five birds per square mile in optimum habitat. At the ISDRA, the creosote bush scrub habitat and the desert washes on the eastern side of the Plan Area may provide suitable habitat for the LeConte's Thrasher. To date, the BLM has not conducted surveys for this species at the ISDRA. Therefore, LeConte's Thrasher distribution and abundance data do not currently exist.

Threats

OHV activity and other human disturbance are considered disruptive to this species, especially during the breeding season (late January to early June). OHV use can crush vegetation and destroy the underlying litter and soil surface thereby precluding heavily used sites from further use by this species (Sheppard, 1996).

Andrews' Dune Scarab Beetle (*Psuedocotalapa andrewsi*)

Likely endemic to the Imperial Sand Dunes, Andrews' dune scarab beetle is found primarily along the eastern edge of the dunes in the transitional zone between creosote bush scrub, psammophytic scrub, and microphyll woodland habitats. Little is known about the biology of this beetle. Current information about the distribution and preferred habitat at the Plan Area is not available (CNDDDB, 2001). There are no confirmed host plants identified of the Andrews' dune scarab beetle. However, the adults of this species are known to swarm around creosote bushes, and may utilize the subsurface wet sand to regulate body temperature during the day (CNDDDB, 2001). No information about threats to this species is available.

Carlson's Dune Beetle (*Anomala carlsoni*)

The Carlson's dune beetle is likely endemic to the Imperial Sand Dune system; however, there is limited information available about the microhabitat requirements or basic biology of this species (CNDDDB, 2001). The adult beetle is known to be active at dusk, generally on north- or east-facing slip faces. Generally, it seeks the transitional zone between creosote bush scrub, psammophytic scrub, and microphyll woodland habitats. Although there is no known host plant, the adult beetle has been sifted (collected) from a wide variety of plants (CNDDDB, 2001). No information about threats to this species is available.

Hardy's Dune Beetle (*Anomala hardyorum*)

Hardy's dune beetle is likely endemic to the Imperial Sand Dunes and is found primarily in the eastern portion of the ISDRA. The adult beetle is known to be active at dusk, generally on north- or east-facing slip faces. Generally, it seeks the transitional zone between creosote bush scrub, psammophytic scrub, and microphyll woodland habitats. The beetle also inhabits troughs of loose, drifting sand between the dune crests (BLM, 1987). Although there is no known host plant, the adult beetle has been sifted (collected) from a wide variety of plants (CNDDDB, 2001). No information about threats to this species is available.

3.3 Law Enforcement and Public Safety

Introduction

United States Congress recognized that law enforcement on BLM-managed public lands was needed to encourage public safety and to protect resources. In 1976, BLM was given law enforcement authority with the passage of FLPMA. BLM law enforcement officers are responsible for promoting public safety and protecting resources within the 264 million acres of BLM-managed public land in the U.S. BLM officers accomplish this in partnership with other federal, state, and local law enforcement agencies. BLM El Centro law enforcement officers patrol the ISDRA, and are tasked with a variety of services, including: educating the public on the rules and regulations, providing security at recreation sites, preventing theft of and damage to biological and cultural resources, assisting in emergency response situations, enforcing the rules and regulations through the issuing of warning and citations and by making arrests. BLM El Centro law enforcement officers enforce both state and federal regulations in the dunes. Current statistics for recorded incidents at ISDRA, as well as summary of the law enforcement personnel are discussed below.

Recorded Incidents

Emergency Response - Medical Aid and Fatalities

During the 2000-2001 Visitor Season, approximately 147 incidents that required medical aid occurred over the six major holiday weekends. This represents an average of 25 medical aid incidents per major holiday weekend. Based on an average of 55,000 visits per major holiday weekend (attendance can swell to over 100,000 visits during Thanksgiving weekend), approximately 1 reported medical aid incident occurs per 2,200 visitors. The number of fatalities averaged approximately one per busy holiday weekend during the 2000-2001 Visitor Season. Table 3.3-1 lists a summary of documented medical aid responses and fatalities (1995 to 2001) provided by BLM El Centro. Records prior to 1995 are not available, and medical aid has not been fully documented over the years. The numbers shown in Table 3.3-1 do not fully capture each time aid was provided by BLM staff (BLM, 2001d).

Table 3.3-1 Documented Medical Aid Responses and Fatalities: 1995 to 2001 – Imperial Sand Dunes Recreation Area

Year	Documented Medical Aid Responses	Documented Fatalities
1995	165	0
1996	131	0
1997	210	5
1998	176	8
1999	151	5
2000	145	6
2001	147	8

Source: Hamada, 2001 – Personal Communication from Neil Hamada/BLM – El Centro to Elizabeth Cutler/CH2M HILL, October 30, 2001 – BLM unpublished data.

Citations and Arrests

During the 2000-2001 Visitor Season, approximately 3,530 citations/arrests occurred over the six major holiday weekends. On average, this represents approximately 588 citations and/or arrests per major holiday weekend or 1.1 citations/arrests per 1,000 visits. The largest numbers of law enforcement incidents occur in Gecko Campground and Garbage Flats (BLM, 2001g).

Violation notices tracked by BLM El Centro include the following categories: registration, minor in possession, no helmet, double riding, no lights, resisting arrest, open container, no safety flag, closed area, vendor permit, controlled substance, use fee, ride in pickup bed, natural feature destruction, speeding, possession of marijuana, furnishing alcohol to minor, revoked license, dumping, glass container, creating a hazard, litter, and concealed (loaded) firearm.

Arrests tracked by BLM El Centro include the following categories: DUI, assault, felony evade, warrant, drugs, explosive device, inciting riot, false information, auto theft, possession of stolen property, and interference.

Reports (including accidents) tracked by BLM El Centro include the following: assault, stolen vehicle, weapon in vehicle, drugs seized, accidents, felony hit and run, child endangerment, undocumented migrant detainees, resisting arrest, resisting issuance of a violation, abandoned vehicles, seized marijuana, seized marijuana/paraphernalia, vehicles towed, vehicles seized, and train accidents.

Table 3.3-2 provides a summary of violation notices, arrests, and reports (including accidents) that BLM El Centro issued for the six major holiday weekends during the 2000-2001 season.

Table 3.3-2 Total Violation Notices, Arrests, and Reports Including Accidents During Major Holiday Weekends: 2000 -2001 – Imperial Sand Dunes Recreation Area

Holiday Weekend	Number of Incidents
Halloween – 2000	260
Thanksgiving – 2000	1,501
New Year's – 2001	409
Martin Luther King – 2001	191
Presidents Day – 2001	860
Easter – 2001	308

Source: BLM unpublished data, 2001.

Law Enforcement Personnel

The BLM, El Centro Field Office, has a staff of 12 delegated law enforcement officers (one Chief, two Supervisors, and nine Rangers) and two non-delegated law enforcement officers (trainees) any of whom may conduct regular patrols of the ISDRA. Various vehicles (e.g., quadrunners and dune buggies) are used to patrol the interior of the dunes to monitor OHV use. Most visitors stay within 1 mile of paved roads and the Sand Highway; however, with

the increased use of global positioning system units, visitors are starting to venture further into the inner dunes (BLM, 2001h).

Additional staffing resources include BLM staff from other offices, as well as other federal and state agencies including National Park Service (NPS), USFWS, U.S. Border Patrol (USBP), U.S. Forest Service (USFS), StateParks, California Highway Patrol (CHP), Imperial County Sheriff's Department, Imperial City Police Department, Brawley Police Department, El Centro Police Department, Calipatria Police Department, and Calexico Police Department. These additional resources are typically brought in over the six major holiday weekends (Halloween, Thanksgiving, New Year's, Martin Luther King, Presidents Day, and Easter). Some additional staffing resources are delegated law enforcement officers; others do not have the authority to arrest, but are capable of detaining individuals until delegated law enforcement officers can arrive. The Imperial County Sheriff's Department and BLM currently co-lead law enforcement activities for major holiday weekends. The Imperial County Sheriff's Department provides an average of 20 officers on holiday weekends and several deputies on non-holiday weekends.

BLM El Centro, Law Enforcement, determines the number of law enforcement officers needed for each holiday weekend to provide services for the ISDRA Plan Area based on the estimated visitor supply. They then coordinate with other agencies to arrange for the officers.

Public Safety Facilities and Equipment

The BLM, El Centro Field Office, has one permanent ranger station within the dunes area: Cahuilla Ranger Station is located on Gecko Road, within the most heavily visited area. The ranger station is open approximately 14 hours each day during holiday periods (approximately 20 days per year). On non-holiday weekends, the ranger station is open approximately 8 hours per day.

Additionally, during holiday weekends, two temporary contact stations are set up, one in Dune Buggy Flats and the other in the Buttercup areas. Law enforcement shares facilities with the park rangers; there is no specific area reserved only for law enforcement use.

The closest hospital to the North Dunes area is Pioneer Memorial, located in Brawley, approximately 35 miles from the ISDRA. The closest hospitals to the South Dunes area are Yuma Regional in Yuma, Arizona, located approximately 25 miles from the ISDRA; and El Centro Regional Medical Center in El Centro, located approximately 20 miles from the ISDRA.

3.4 Social

Introduction

This section focuses on the demographics and social trends occurring in parts of Arizona and California. The ISDRA draws the majority of its recreational visitors from Southern California, including San Diego, Riverside, San Bernardino, Orange, Imperial, and Los Angeles Counties, and Arizona, including Yuma, Pima and Maricopa Counties. Since the ISDRA is located within Imperial County, California, and with Yuma County, Arizona, to the immediate east, additional focus will be given to these two geographical areas. In addition, the following individuals and groups will be discussed: OHV recreational users, environmental advocacy groups, vendors, OHV related business owners, and local communities.

Demographics

In 2000, the nine counties had an estimated population of 22.6 million, up from 19.3 million in 1990. This represents an increase of over 3.3 million people (17 percent) in a decade. Table 3.4-1 provides a summary of the current population in the nine counties as well as 20-year population projections for each county. All counties except Los Angeles showed double-digit increases in population between 1990 and 2000. Imperial County's 30.2 percent increase was second only to Riverside County's 32.0 percent increase among the six California counties. Two of the Arizona counties, Maricopa and Yuma, experienced growth rates of 44.8% and 49.7%, respectively.

The 20-year projections suggest continued growth for the nine counties. Triple digit growth is projected for Riverside, Maricopa and Imperial counties. In addition to the projected growth within Imperial County, increased population in the other counties of the study area will move population centers closer to Imperial County.

**Table 3.4-1: Population Estimates for the Nine Counties in the
Affected Environment, 1990 – 2020.**

	1990	2000	2010	2020	% Increase 1990- 2000	% Increase 2000 - 2020
Imperial	109,303	142,361	217,500	294,200	30%	169%
Los Angeles	8,863,164	9,519,338	10,605,200	11,584,800	7.4%	31%
Orange	2,410,556	2,846,289	3,266,700	3,541,700	18%	47%
Riverside	1,170,413	1,545,387	2,159,700	2,817,600	32%	141%
San Bernardino	1,418,380	1,709,434	2,231,600	2,800,900	20%	97%
San Diego	2,498,016	2,813,833	3,288,400	3,863,500	13%	55%
Maricopa	2,122,101	3,072,149	3,709,566	4,516,090	45%	113%
Pima	666,880	843,746	1,031,623	1,206,244	26%	81%
Yuma	106,895	160,026	171,689	209,861	50%	80%
Study Area Total	19,365,708	22,652,563	26,781,978	34,834,895	17%	80%

Imperial County occupies an area of 4,587 square miles in the southeastern corner of California. It is bounded on the north by Riverside County, on the west by San Diego County, on the south by Mexico, and on the east by the Colorado River and Yuma County, Arizona. The ISDRA is located within a sparsely populated, unincorporated area of Imperial County. The 2000 census indicated that Imperial County had a total population of 142,361 (California DOF-1, 2001). There are seven incorporated cities in the county, the three largest being El Centro, Calexico, and Brawley with populations of 37,835; 27,109; and 22,052, respectively. Seventy-seven percent of the County's inhabitants live in the incorporated areas. Table 3.4-2 shows the county and city populations for Imperial County in 1990 and 2000.

Table 3.4-2 Imperial County/City Population Estimates

County/City	1990	1990 Percentage of Total	2000	2000 Percentage of Total
Brawley	18,923	17	22,052	15
Calexico	16,633	17	27,109	19
Calipatria	2,690	3	7,289	5
El Centro	31,405	29	37,835	27
Holtville	4,820	4	5,612	4
Imperial	4,113	4	7,560	5
Westmorland	1,380	1	2,131	1
Unincorporated	27,339	25	32,773	23
Incorporated	81,964	75	109,588	77
County Total	109,303	100	142,361	100

Source: California DOF-1, 2001

Based on the 2000 census data, approximately 72 percent of the population of Imperial County was classified as Hispanic. Whites were the next largest ethnic group at 20 percent of the population. The remaining 8 percent of the county population was classified as African American, Asian and Pacific Islander, American Indian, or Other (including those identifying two or more racial backgrounds). These percentages are comparable to the 1990 data as shown in Table 3.4-3.

Table 3.4-3 Imperial County Racial Profile

Race	1990	1990 Percentage of Total	2000	1997 Percentage of Total
White	31,901	29	28,768	20.2
Hispanic	71,935	66	102,817	72.2
African American	2,272	2.1	5,148	3.6
Asian and Pacific Islander	1,632	1.5	2,521	1.8
American Indian	1,563	1.4	1,736	1.2
Other ^a			1,371	1.0
Total	109,303	100	142,361	100

Source: California DOF-2, 2001; 2000 U.S. Census

^aThe 2000 estimate for Others includes those identifying two or more racial backgrounds. Two or more racial background identification was not part of the 1990 Census.

Yuma County occupies an area of 5,522 square miles in the extreme southwest corner of Arizona. It is bordered by the Colorado River and Imperial County, California, on the west and Mexico on the south. The 2000 census indicated that Yuma County had a total population of 160,026 (Census, 2000). There are seven incorporated cities in the county, the three largest being Yuma, Fortuna Foothills CDP, and San Luis with populations of 77,515; 20,478; and 15,322, respectively. Sixty-four percent of the inhabitants of the county live in the incorporated areas. In Yuma County, the City of Yuma is the population center nearest to the ISDRA. Table 3.4-4 shows the county and city population for Yuma County.

Table 3.4-4 Yuma County/City Population Estimates

County/City	1990	1990 Percentage of Total	2000	2000 Percentage of Total
Fortuna Foothills CDP	7,737	7.2	20,478	12.8
Gadsden CDP	NA	NA	953	0.6
San Luis City	4,212	3.9	15,322	9.6
Somerton City	5,282	4.9	7,266	4.5
Tacna CDP	NA	NA	555	0.3
Wellton town	1,066	1.0	1,829	1.1
Yuma City	54,923	51.4	77,515	48.4
Unincorporated	41,412	38.7	58,094	36.3
Incorporated	65,483	61.3	101,932	63.7
County Total	106,895	100	160,026	100

Source: Arizona DES-1 and DES-2, 2001

NA = Not available

Hispanics comprise the largest racial group accounting for 50.5 percent of the 2000 population of the county. Whites are the second largest racial classification comprising 44.3 percent of the population, while the remaining racial classification of African American, Asian and Pacific Islander, and American Indian comprise approximately 2.0, 0.9, and 1.1 percent of the population, respectively. Table 3.4.5 summarizes the racial profile of Yuma County with a comparison to 1990 data. As the data indicate, the number of Hispanics has increased from about 40 percent of the population of the county in 1990 to about 51 percent in 2000. This increase in the percentage of Hispanics has been accompanied by a decrease in the White population from 54.4 percent in 1990 to 44.3 percent in 2000.

Table 3.4-5 Yuma County Racial Profile

Race	1990	1990 Percentage of Total	2000	1997 Percentage of Total
White	58,151	54.4	70,956	44.3
Hispanic	43,388	40.6	80,772	50.5
African American	2,776	2.6	3,136	2.0
Asian & Pacific Islander	1,188	1.1	1,494	0.9
American Indian	1,178	1.1	1,819	1.1
Other	214	0.2	1,849	0.2
Total	106,895	100	160,026	100

Source: Arizona DES-3, 2001 and Arizona DES-4, 2001

Social Trends

The management of public lands is a part of a controversial discussion on recreational use, land use, environmental issues and resource management that is occurring both in the United States and globally. Social values for lands and natural resources vary greatly by individual and groups. Based on comments received during the public comment period, these values for the ISDRA include public use, spiritual use, ecological use, resource protection, resource conservation, wilderness, health, and recreation.

According to *Outdoor Recreation In America 1999: The Family and the Environment*, Americans are concerned about the environment, but they do not think that answer to environmental protection is forbidding the use of public lands. 78% of Americans say outdoor recreation, overall, has a “good effect” or “no effect” on the environment. 62% believe its effects are “good”. 11% say outdoor recreation has a “bad effect”.

Outdoor Recreation In America 1999: The Family and the Environment also states that many Americans believe that the key to environmentally safe recreation is responsible behavior. 47% of Americans “strongly agree” with the statement: “if people would just follow the rules in parks and other outdoor recreation areas, their use of the land would have no significant effects on the environment”, and 42% “mostly agree”. Similarly, 90% “strongly” or “mostly agree” that “most recreation is compatible with environmental protection when done responsibly”. However, 76% say they are “very concerned that people who engage in outdoor recreation hurt the environment by leaving trash and damaging the landscape”.

The survey data in *Outdoor Recreation In America 1999: The Family and the Environment* indicates that most Americans believe that outdoor recreation can promote environmental responsibility. 89% “strongly” or “mostly agree” with the statement: “Outdoor recreation benefits the environment because it gives people more of a reason to care about environmental protection”. 86% agree with the statement “spending time outdoors gives people the incentive to take care of the environment properly.”

Affected Users

The groupings used in the section are made to facilitate the discussion of social values and impacts. Any member of any of these groups may have actual attitudes and values that are significantly different than those expressed below. Some members of the public identify themselves with one or more of these groups.

OHV Recreational Users

In California there are 3.5 million OHV recreation enthusiasts: this is 14.2% of all households according to *CA State Parks, Taking the High Road*. Arizona Game and Fish Department's Off-Highway Vehicle Safety and Habitat Protection Program states that OHV recreation use on public lands has increased significantly: "Since 1977 the increased use of OHVs has out-paced Arizona's population growth. OHV use has more than doubled, while the population has increased by slightly more than 65 percent. A study completed in 1990 estimated the number of OHV's (4X4's, Buggies/Sandrails, ATV's, Motorcycles, and Snowmobiles) in Arizona, to be over 550,000."

An analysis of the *Imperial Sand Dunes Visitor Research Case Study* (August 1993) characterizes visitors to the ISDRA as predominately white (68%), relatively young (85% were 45 years of age or younger), majority male (66%), and most had at least a high school education (91%). Most visitors were from California (82%), although many visitors were from Arizona (15%). The activity most visitors stated they participated in was OHV riding (90%). However, only one third listed OHV riding as the primary reason for visiting the dunes. Other reasons included: the dunes, friends, open spaces, play, accessible, curiosity, to get away, vacation, and to race. The majority of visitors (94%) learned about ISDRA from friends and family.

"Many families use outdoor recreation as a way to form bonds and transfer important family values to children. A number of Americans feel recreation strengthens the family as a unit and the children as individuals" (*Outdoor Recreation In America 1999: The Family and the Environment*). Participation in outdoor activities can greatly increase family interaction and foster cohesion. Numerous recreational users identified building family values and family interaction as important reasons that they enjoy the ISDRA during the public comment period. Several individuals stated at the public comment meetings that participation in recreational opportunities at ISDRA gave their teenage children positive social interactions. Some members of the public attributed their children's lack of interest in drugs to their increased interest in recreational use of the dunes. Numerous public comments stated that the ISDRA has been used by their extended families for several generations.

Americans believe that today's young people should participate in recreation. A survey by *Outdoor Recreation In America 1999: The Family and the Environment* showed that 72% of the participants believed that outdoor recreation promotes good health, 70% that outdoor recreation creates shared experiences family and friends can bond over, 69% that outdoor recreation teaches appreciation of nature, 68% that it helps children develop important physical skills, 65% that outdoor recreation builds self esteem and personal growth and 62% that it helps children develop important interpersonal skills.

Many recreational users have concerns about the future of OHV recreational use of the public land in the California desert. The number of acres of public lands in the California desert that are open to OHV use has decreased since the First Wilderness Act of 1964 designated approximately 1 million acres of CA as wilderness. In addition, in 1968-1978, there were 14 additional areas that were designated as wilderness. Furthermore, Wilderness Acts or monument designations in 1984, 1992, 1994, and 1999 increased closed or restricted areas by more than 8,581,259 acres.

As summarized in *CA State Parks, Taking the High Road*: "The California Desert Protection Act of 1994 affected OHV recreation through its wilderness designations and through the transfer of BLM land to the National Park Service. The California Desert District Office of the BLM managed 13.5 million acres, the majority of which was available for OHV recreation prior to passage of the California Desert Protection Act. Of the original 13.5 million acres, 6.4 million acres (48 percent) were closed "...to OHV use..." as a result of wilderness area designations and land transfers to the National Park Service."

The number of participants in OHV activities, as a whole, and at ISDRA and elsewhere has increased in the past few decades, while the amount of public land on which to participate has decreased. According to *CA State Parks, Taking the High Road*, "Since 1980, the acreage available to Green Sticker vehicles for recreation has shunk 48 percent in our deserts alone, while off-highway vehicle registrations have increased 108 percent." This situation has increased the recreational user's concern that OHV use of public lands may not be available for future generations. There has been a 30% increase in the number of dirt bike registrations between 1983 and 2000, a 96% increase in the number of All-Terrain Vehicle registrations between 1983 and 2000, a 96% increase in the number of dune buggy and sand rail registrations between 1983 and 2000 and a 74% increase in the number of street licensed 4 wheel drive vehicle registrations between 1994 and 2000.

Based on comments received during the public comment period, many ISDRA OHV recreational users believe that they do not harm environmental resources by their recreational activities at the dunes. Many recreational users stated that they have a respect for the land and the species that live there. Many commentators stated that survey information on a specific endangered species indicated that recreational use was compatible with species conservation. Many recreational users stated a belief that concern about species conservation was a method being used by environmental groups to close the dunes to recreational use. Recreational users have become more informed about the environmental concerns at the ISDRA during the past decade. Recreational users are funding and supporting environmental surveys so that they can learn more about the concerns and form their own opinions on the issues.

During the scoping period and the public comment period a group of non-traditional recreational users had been identified. This group visits the dunes to recreate in a manner that is unsafe and troublesome. They participate in illegal and unsafe activities. This group of recreational users will not be discussed further in the social section of this document, as their use of the ISDRA is considered as unacceptable. Their behaviors and future will be

discussed further in the section on Law Enforcement. The mainstream OHV recreational users do not identify with this group and do not desire to be associated with their activities.

Environmental Advocacy Groups

Based on the comments received during the public comment period, the environmental advocacy groups recreationally use the ISDRA as a hiking area. They desire a quiet, peaceful time of reflection and observation of nature during their visit to the ISDRA. Some members of this group have indicated that the noise from OHV use is distracting. They believe that the solitude and peace they seek is harder and harder to find and that they need to establish areas to have this experience.

According to *Outdoor Recreation In America 1999: The Family and the Environment*” 51% of the environmental leaders and activists say to experience nature is a very important reason to participate in outdoor recreation. This percent was the same for environmental spenders (those who are willing to pay to improve the environment, but with little time to get involved themselves).

Generally, environmental advocacy groups support a more restrictive plan for the OHV use of the ISDRA. Commentors during the public comment process stated that they were concerned that the management of the ISDRA would not provide enough acreage for the protection of threatened and/or endangered species, and other species. They also expressed concerns about air quality, pollution, habitat destruction, and disturbance to native plant species and wildlife. Many commentors thought that dividing the acreage evenly for recreational use and protection would be desirable. Many environmental advocacy group comments indicated that they were not confident that OHV recreational use could occur without harming the environmental resources.

The conditions and resources on public lands are important to the environmental advocacy groups. Many members of these groups appreciate just knowing that these areas exist, even if they never visit the areas. Members of these groups feel strongly that the public lands must be managed to protect the resources for future generations. Overall, the environmental advocacy groups that participated in the public comment process are concerned that OHV use is not compatible with their desired recreational experiences, resource conservation and resource protection.

Vendors

The vendors believe that they perform a public service in providing supplies and services to the recreational users of the ISDRA. The vendors have stated that their businesses are highly profitable, even when operated during the slower periods of the recreational season. They believe that they have a right to continue to operate at the ISDRA. Many of the vendors believe that they have the right to live where they vend or that they must live near where they vend to protect their business from theft. Many of these vendors do not seem to understand the special recreation permits regulations under which they are allowed to operate.

According to comments received from local businesses during the public comment period, many vendors do not appreciate the affect they have on local businesses. Many local

businesses believe that they may fail financially if unrestricted vending is allowed to continue. Many local businesses believe that they are unable to compete with the vendors since the vendors do not have the expenses associated with property ownership.

Based on comments at the public comment meetings, the vendors are concerned with the proposed rules and changes to bring the vending program into compliance with BLM's requirements and the federal regulations (43 CFR 8372). The vendors believe that their services should be available daily, not just at peak use times. The vendors support unrestricted vending and residential use of the vending area.

OHV Related Business Owners

During the public comment period, many highly profitable OHV related business owners described their business and how the proposals in the draft document could impact their business. Most business owners felt that any restriction on OHV use could impact their business in a negative manner. Some specific law enforcement proposals such as nightly curfews were identified as potentially impacting some businesses to the point of non-existence, for example a business that is involved with exterior lighting of OHVs. However, the public comments reflected that reducing the number of recreational opportunities by visitor supply controls would most likely have the largest negative financial impact to the OHV related businesses. The OHV related business owners support increased use of ISDRA for OHV recreation and indicated that jobs would be lost if OHV use was severely restricted.

Local Communities

During the public comment period, numerous officials from the local communities stated that they support the use of the ISDRA for OHV recreation. They stated that the recreational use of the ISDRA provides jobs for their communities at grocery stores, restaurants, gas stations, medical facilities, and vehicle sales, repair and supply shops. Some officials indicated that the money that is spent in their communities then is redistributed in the community through the local residents spending their salaries. The effect of the money spent by the recreational users is expected to be significant due to the cumulative effect of the jobs that are supported by these expenditures.

Local community businesses also participated in the public comment period. These businesses supported the recreational use of the dunes and indicated that jobs would be lost if the ISDRA significantly restricted OHV use.

The increased law enforcement at the ISDRA includes the use of local law enforcement officers. Currently, the cost associated with the use of local law enforcement officers is paid for with a grant. The local community support of providing law enforcement officers for the ISDRA may change if continued external funding is not available to support their efforts.

The local communities expressed a concern related to the use of local land, including privately owned land, by OHV recreational users. There is a concern that if the use of ISDRA is restricted, more recreational users who are turned away from the ISDRA may trespass into the privately owned desert land in the local communities to camp and ride without permission. This conflict is becoming more apparent as users from urban areas

travel to more rural areas to recreate. As stated in *CA State Parks, Taking the High Road*: “At one time, local OHV opportunities were accessible to Southern Californians, even within such heavily urbanized counties as Orange, Los Angeles, and San Diego. As regional populations increased within these areas and the usable OHV land was decreased, outlying rural areas began to receive heavier use and “backyard” riding resulted in increased user conflicts and complaints in the urban/rural interface. Today, the situation is exacerbated by an increased and legitimate interest in protecting natural resources within rural riding areas and increasing user conflicts in once rural OHV areas that are now rapidly being absorbed into the urban edge.”

3.5 Economic

Introduction

To evaluate the economic conditions that may be affected by the management of the ISDRA, this section will present trends in regional employment, income, and finance. Economic data are generally reported at the County level, so this section will describe the economic conditions at the county level for both Imperial and Yuma. In addition, selected, available OHV specific economic information will be presented.

Imperial County, California

The civilian labor force in Imperial County in 2000 was about 58,500. The average unemployment rate in the civilian labor force was 26.3 percent, compared to 4.9 percent for the State (California EDD, 2001). Historically, Imperial County has had one of the highest unemployment rates within the state, approaching 30 percent during the 1990s. The primary employment sectors in the county are the government, agriculture, trade, and service. The table below shows the major employment sectors for 2000. The agriculture and government sectors are the dominant sectors in the county providing approximately one in two jobs. The bulk of the other jobs are in the trade (both wholesale and retail) and services sectors. Retail trade employs 8,300 people and accounts for 16.7 percent of the industry employment. Services employ 5,700 and account for 11.4 percent of the industry employment. According to comments received during the public comment period, the retail trade and service employment of Imperial County is directly linked to sales to recreational users of the ISDRA. Loss of jobs could occur if visitation to the ISDRA is severely limited.

The per capita income for Imperial County in 1999 was \$17,550, one of the lowest in California and well below the state average of \$29,856 (California DOF-4, 2001). Median family income for 1990 was estimated at \$25,147. The percent of person below the poverty level in 1990 was 23.8 percent compared to 12.5 percent for the state (California DOF-5, 2001).

Summary of Imperial County Employment Data, 2000

	Employment Numbers	Percentage of Total
Agriculture	11,300	22.7
Construction and Mining	2,100	4.2
Manufacturing	1,900	3.8
Transportation and Public Utilities	1,900	3.8
Wholesale Trade	2,100	4.2
Retail Trade	8,300	16.7
Finance, Insurance and Real Estate	1,100	2.2
Services	5,700	11.4
Government:	15,500	31.1
Federal Government	1,800	3.6
State and Local Government	13,700	27.5
Total Industry Employment	49,800 ^a	100.0

Source: California EDD, 2001.

^aDifference in totals is due to the differences in labor force and employment by-industry data.

Taxable retail sales in Imperial County was \$871.2 million in 1999 (California DOF-6, 2001). This represents about 0.3 percent of total state retail sales. The sales tax rate in the county is 7.5 percent.

Yuma County, Arizona

The average civilian labor force in Yuma County in 2000 was about 65,700. The average unemployment rate in the civilian labor force was 27.5 percent compared to 3.9 percent for the state (Arizona DES-5, 2001). The primary employment sectors in the county are the government, trade, and services. The table below shows the major employment sectors for 2000.

Summary of Yuma County Employment Data, 2000

	Employment Numbers	Percentage of Total
Agriculture	7,475	15.7
Construction and Mining	2,750	5.8
Manufacturing	2,200	4.6
Transportation and Public Utilities	1,550	3.3
Trade	11,250	23.6
Finance, Insurance and Real Estate	1,325	2.8
Services	9,625	20.2
Government:	11,425	24.0
Federal Government	2,075	4.4
State and Local Government	9,350	19.6
Total Industry Employment	47,600 ^a	100.0

Source: Arizona DES-5, 2001.

^aDifference in totals is due to the differences in labor force and employment-by-industry data.

The government, trade, and services sectors are the dominant sectors in the county providing one out of every three jobs. The government sectors (federal, state, and local) employ 11,425 people (about 24 percent), whereas the trade sectors employ 11,250 people (about 24 percent). The services sector employs 20.2 percent (or 9,625) of the labor force. According to comments received during the public comment period, the retail trade and service employment of Yuma County is directly linked to sales to recreational users of the ISDRA. Loss of jobs could occur if visitation to the ISDRA is severely limited.

The per capita income for Yuma County in 1999 was \$18,452 ranking 10th out of the 15 counties in Arizona. The average per capita income for the state was approximately \$25,173. Median family income for 1990 was estimated at \$23,635 (Arizona DES-6, 2001). In 1990, the poverty rate stood at 19.9 percent, a figure that is more than the state average of 15.7 percent (Arizona DES-7, 2001).

Taxable retail sales in Yuma County was \$780 million in 1999. (Smith, 2002). This represents about 2 percent of total state retail sales. The sales tax rate in the county in 1999 was 7.10 percent (Heugly, 2002).

OHV Economics

A Survey by Sacramento State University, Institute for Social Research, 1993 assessed the economic impact OHV recreation has on the California. This survey determined that 43,000 jobs within California are affected by OHV recreation. According to the survey, OHV recreation generates about \$1.6 billion in personal income. Comments received during the public comment period support these findings: numerous business owners, both in California and Arizona, testified that their business is directly related to and affected by OHV use.

They indicated that their business could be directly affected financially by severe restrictions on visitor use of the ISDRA.

The table below provides a summary of the affects of OHV recreation on the state of California's economy. Over two billion dollars are directly related to OHV purchases, fuel, parts, repairs, accessories, equipment and insurance.

OHV Recreation Economics for California

Item or Service	Expenditures
OHV purchases	\$1,166,000,000
Fuel, parts, repair, and insurance	\$646,000,000
Accessory and equipment	\$491,000,000
Groceries, restaurants, lodging	\$469,000,000
Misc. costs and other equipment	\$244,000,000
Total	\$3,049,000,000

Data from *CA State Parks, Taking the High Road*

“More than four million people visit lands designated for off-highway recreational use each year, and this ever more popular form of recreation contributes more than \$3 billion to the state economy each year” according to *CA State Parks, Taking the High Road*.

3.6 Land Use and Land Ownership

Regional Setting

The ISDRA is located in southeastern California, in Imperial County, a county that extends over 4,597 square miles, bordering on Mexico to the south, Riverside County to the north, San Diego County on the west, and the State of Arizona on the east. Although lying in the desert east of the Peninsular Range of Southern California, the availability of irrigation water from the Colorado River has made possible a substantial agricultural economy in Imperial County. Approximately one-fifth of the land in the county is irrigated for agricultural purposes, while about half of county lands are largely undeveloped and under federal ownership. There are seven incorporated cities within Imperial County: Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial, and Westmorland. These incorporated cities, as well as the unincorporated communities and supporting facilities, occupy less than 1 percent of the land in the county.

The Imperial Sand Dunes, also referred to as the Algodones Dunes, extend from central Imperial County more than 40 miles into the southeastern portion of the county. The dunes and associated sand sheets generally form the eastern boundary of the agricultural area of Imperial Valley. The dunes themselves form a band averaging 5 miles in width. The ISDRA itself is roughly bordered on the west by the Coachella Canal, which delivers Colorado River water to the fertile agricultural valley to the north and west. A major east-west route of the Union Pacific Railroad skirts the eastern edge.

The dune system, extending from northwest to southeast, is crossed by two major east-west highways, near which recreational use traditionally has been concentrated. To the north, SR 78 crosses at the small settlement of Glamis, and connects Brawley (29 miles west of Glamis) with Blythe (60 miles northeast of Glamis). At the south end of the recreational area, I-8 crosses the dunes in the Buttercup Valley area. This highway provides access from El Centro and Southern California to the west, and from Yuma and the urban centers of Arizona to the east.

The ISDRA Plan Area includes not only the most of the sand dunes system, but also adjacent sand sheets to the west, and dissected distal alluvial fans to the east. Land use patterns (excluding recreational use) are less constrained than they are in the sand dunes themselves. These adjacent lands include the area east of Glamis along Ted Kipf Road and the Union Pacific Railroad to the east, and the East Mesa Area including the land between the Old Coachella Canal and the New Coachella Canal.

For management and reference purposes, the ISDRA has been generally divided into three areas. The northern-most area is known as Mammoth Wash. South of Mammoth Wash is the North Algodones Dunes Wilderness, which was established by the 1994 California Desert Protection Act. This area is closed to mechanized use and is accessible only by hiking and horseback. The largest and most heavily used area for OHV recreational purposes is south of the wilderness, beginning at SR-78 and continuing south beyond I-8 to the border with Mexico.

Regulatory Framework

Plans and policies applicable to the management and ownership of any parcel or right-of-way depend upon the agency responsible for managing the lands involved. Primarily, the lands within the ISDRA are public lands managed by the BLM. The governing laws and applicable land management plans for these lands are the:

Federal Land Policy and Management Act of 1976 (P.L. 94-579, as amended)
California Desert Protection Act of 1994 (P.L. 103-433)
BLM California Desert Conservation Area Plan of 1980, as amended

Lands under private ownership exist within and adjacent to the Plan Area boundary. Applicable land management plans and policies for these lands include the Imperial County General Plan and the Imperial County Zoning Regulations.

Two parcels of land owned by the California State Lands Commission (CSLC) lie within the ISDRA Plan Area. California State Lands Commission does not actively manage these parcels.

Federal Land Policy and Management Act of 1976, As Amended

In 1976, Congress enacted the FLPMA and established the 25-million-acre CDCA. FLPMA was enacted to direct the management of the public lands of the United States, including the 12 million acres of public lands within the CDCA. Section 601 of FLPMA required BLM to develop a plan to "...provide for the immediate and future protection and administration of the public lands in the California Desert within the framework of a program of multiple use and sustained yield, and the maintenance of environmental quality." The CDCA Plan, discussed in more detail below, was created to establish guidance for the management of the public lands of the California Desert by the BLM, including the ISDRA.

Congress, in Section 102(a)(7) of the Federal Land Policy and Management Act of 1976, declared that the public lands included in the Act were to be managed "on the basis of multiple use." FLPMA defines multiple use as "... the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and condition..." The definition goes on to allow some areas to be managed for "...less than all the resources; a combination or balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources..." (Section 103(c)).

The Federal Land Policy and Management Act of 1976 states in Title VI– Designated Management Areas, Section 601, "The Congress finds that–

- (1) The California desert contains historical, scenic, archeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources that are uniquely located adjacent to an area of large population,

- (2) the California desert environment is a total ecosystem that is extremely fragile, easily scared, and slowly healed,
- (3) the California desert environment and its resources, including certain rare and endangered species of wildlife, plants and fishes, and numerous archeological and historic sites, are seriously threatened by air pollution, inadequate Federal management authority, and pressures of increased use, particularly recreational use, which are certain to intensify because of the rapidly growing population of southern California;
- (4) the use of all California desert resources can and should be provided for in a multiple use and sustained yield management plan to conserve these resources for future generations, and to provide present and future use and enjoyment, particularly outdoor recreation uses, including the use, where appropriate, of off-road recreational vehicles...”

California Desert Protection Act of 1994

The CDPA established 69 wilderness areas located on BLM-managed public lands. In its findings for the CDPA, Congress declared that (1) wilderness is a distinguishing characteristic of the public lands in the California desert, (2) the wilderness values of desert lands are increasingly threatened by activities and intrusions associated with incompatible use and development, and (3) the preservation of desert wilderness requires the highest forms of protective designation and management. The CDPA established the North Algodones Dunes Wilderness, located in the northern portion of the ISDRA Plan Area, beginning just north of SR-78, and ending just at the proposed Mammoth Wash Management Area (see Figure 1-2). This enhanced the multiple-use aspect of the ISDRA by assuring primitive, non-motorized recreational experiences would be available along with motorized recreational activities in other parts of the ISDRA.

California Desert Conservation Area Plan

The CDCA Plan is a comprehensive, long-range plan for the use and management of the 12 million acres of public land within the boundaries of the California Desert Conservation Area. The CDCA Plan was adopted in 1980, and subsequently has been amended on a periodic basis. The goal of the CDCA Plan is to provide and enhance uses for public lands without diminishing the environmental, cultural, and aesthetic values of these lands (BLM, 1980).

The ISDRA is located entirely within the CDCA. The majority of the public lands within the CDCA have been designated under a multiple-use classification system. The CDCA Multiple-Use Classes are discussed in Chapter 2 and illustrated in Figure 3.61.

All four MUCs are represented within the ISDRA. The North Algodones Dunes Wilderness is located within lands designated Class C. The CDCA Plan assigned much of the central dunes and Pilot Knob Mesa on the eastern edge of the dunes to Class L, to protect sensitive plant and wildlife habitat. East Mesa south of SR78, the area east of Glamis, and South Ogilby Dunes were placed in Class M. Class I areas within the ISDRA include the intensively used OHV activity areas such as those near Glamis, along the Gecko Road, and

Buttercup Valley. The management objective of these areas is to enhance opportunities for OHV recreation.

In addition to MUCs, the CDCA also designated ACECs, areas where special management attention is required to protect and prevent damage to important natural and cultural resources. Within the ISDRA, is the Plank Road ACEC and immediately adjacent to the southwest boundary is the East Mesa ACEC. The former was designated an ACEC to protect this historic resource, and the latter was designated to ACEC to protect habitat of the flat tailed horned lizard.

Imperial County General Plan and Zoning Regulations

As Imperial County has no direct land use jurisdiction over public lands, neither the General Plan nor the Imperial County zoning regulations are directly applicable to activities proposed on public lands. However, private lands scattered throughout and adjacent to the Plan Area are under the jurisdiction of Imperial County.

The state-mandated Imperial County General Plan (General Plan) was developed to create a balanced, comprehensive guide for future physical growth of lands within the county, and to provide mechanisms to achieve the desired goals and objectives of the county. The General Plan strives towards achieving a balance between development and economic, social, and environmental resources. The General Plan consists of nine elements: Land Use, Housing, Circulation and Scenic Highways, Noise, Seismic and Public Safety, Agriculture, Conservation and Open Space, Geothermal and Transmission Resources, and Water Resources (Imperial County, 1993).

A land use map that depicts existing and projected land use development patterns within Imperial County is provided as part of the Land Use Element of the General Plan (Land Use Plan). The Land Use Plan indicates that the ISDRA and vicinity, including both public- and privately-owned lands, are located within a larger area currently zoned “S-2, Open Space Preservation,” with the exception of some small, scattered parcels of land zoned S1 (Open Space Recreation) or C1-PE (Neighborhood Commercial, Pre-existing). The Conservation and Open Space Element of the Plan is concerned with open space and other environmental resources. The purpose of the Conservation and Open Space Element of the General Plan is to:

- Promote the protection, maintenance, and natural resources of the county with particular emphasis on scarce resources and resources that require special control and management

- Prevent the wasteful exploitation, destruction, and neglect of the natural resources of the state

- Recognize that natural resources must be maintained for their ecological value as well as for the direct benefit to the public

View Figure 3.6-1

Multiple use classes - 62 Kb

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Protect open space for the preservation of natural resources, the managed production of resources, outdoor recreation, and public health and safety

The General Plan provides for the preparation and adoption of specific plans as “planning tools” to implement the general plan for further studies as needed prior to development. Two specific plan areas are in the immediate vicinity of the ISDRA. The boundaries of the 8,960-acre Felicity Specific Plan Area approach the ISDRA from the west. It is intended that this plan area will be developed with a full range of residential, commercial, and light industrial uses in a manner compatible with the natural setting of the site and its visibility from I-8. The Felicity Specific Plan is currently in litigation and has not been approved (Imperial County, 2001a). The Glamis Specific Plan Area is approximately 160 acres and is located just inside the eastern boundary of the ISDRA at SR-78. The Glamis Specific Plan Area is intended to accommodate recreation-supporting land uses including retail and service commercial, motel accommodations, recreational vehicle and mobilehome parks, and community facilities. Except as needed for onsite employees, the Glamis Specific Plan does not include use areas for permanent occupancy

Land Ownership and Rights -of-Way

A mixed ownership pattern, with public land managed by the BLM comprising most of the land, exists within the ISDRA planning area (Figure 3.6-2).

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View Figure 3.6-2

Land Ownership and Management - 89Kb

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In addition to a limited number of parcels in private ownership as well as lands withdrawn for other federal use (such as that by the Department of Defense or the Bureau of Reclamation) under FLPMA the BLM has granted a number of rights-of-way for facilities within the ISDRA (Table 3.6-1).

Table 3.6-1 Rights-of-Way And Other Entitlements Within The ISDRA Planning Area

Mammoth Wash Management Area
<ol style="list-style-type: none"> 1. Cathodic Protection Unit Site R/W (LA 0158160) 2. BLM Windmill and Wildlife Water Tank Sites (2) R/W (CA-8714)
North Algodones Dunes Wilderness Management Area
<ol style="list-style-type: none"> 1. BLM Windmill and Wildlife Water Tank Site R/W (CA-8714) 2. State Route 78 R/W (CA-14630) 3. Military Target Area (R 05657)
Gecko Management Area
<ol style="list-style-type: none"> 1. Military Target Area (R 05657) 2. Old Coachella Canal R/W (LA 056654) 3. Withdrawal Yuma Reclamation Project - New (Realigned) Coachella Canal 4. BLM (Gecko Road) Easement (CA-2551) 5. Glamis Known Geothermal Resource Area (CA-17575) 6. Fiber Optic Line (AT&T) R/W (CA-41690) 7. Underground Telephone Line R/W (CA-19125) 8. Temporary Use Permits for Apiary Sites along Coachella Canal
Glamis Management Area
<ol style="list-style-type: none"> 1. Underground Telephone Line R/W (CA-19125) 2. Road R/W (CA-40791) 3. State Route 78 (Realigned portion) R/W (CA-17922) 4. Fiber Optic Line (AT&T) R/W (CA-41690)
Adaptive Management Area
<ol style="list-style-type: none"> 1. Military Target Area (R 05657) 2. Cathodic Protection Unit Site R/W (LA 0158161) 3. Glamis Known Geothermal Resource Area (CA-17572)

Table 3.6-1 Rights-of-Way And Other Entitlements Within The ISDRA Planning Area

Dune Buggy Flats Management Area
<ol style="list-style-type: none"> 1. All American Canal R/W (LA 077775) 2. Proposed Withdrawal, All American Canal Lining Project (CA-34475) 3. Old Coachella Canal R/W (LA 056654) 4. Withdrawal Yuma Reclamation Project - New (Realigned) Coachella Canal 5. Military Target Area (R 05657) 6. Temporary Use Permits for Apiary Sites along Coachella Canal
Ogilby Management Area
<ol style="list-style-type: none"> 1. Interstate 8 Highway R/W (LA 0165008) 2. State Highway (Grays Well Overpass) R/W (CA-17911) 3. Transmission Line R/W (LA 055613) 4. Transmission Line R/W (CA-5865) 5. County Road (Ogilby) R/W (CA-19171) 6. Communication Site, Access Road and Transmission Line R/W (CA-17182) 7. Railroad R/W (east boundary of management area) 8. All American Canal and Well Sites R/W (LA 077775) 9. Proposed Withdrawal, All American Canal Lining Project (CA-34475)
Buttercup Management Area
<ol style="list-style-type: none"> 1. Utility Corridor J (2 miles wide) 2. All American Canal and Associated Telephone and Transmission Line R/W (LA 077775) 3. Transmission Line R/W (CA-5865) 4. Transmission Line R/W (CA-18904) 5. Transmission Line R/W (LA 055165) 6. Transmission Line R/W (LA 0164553) 7. Powerline Extension (to All American Canal) R/W (CA-35934) 8. Underground Telephone Line R/W (CA-26357) 9. Underground Fiber Optic Line (Level 3) R/W (CA-41192) 10. Barrier (U.S. Border Patrol) R/W Reservation (CA-34052) 11. Road (Grays Well Road) R/W Reservation to BLM (CA-19131) 12. Interstate 8 Highway R/W (LA 0165008) 13. State Highway (Grays Well Overpass) R/W (CA-17911) 14. Interstate 8 Highway and Ancillary Facilities R/W (R 07237) 15. Interstate 8 Highway and Ancillary Facilities R/W (R 01737) 16. Proposed Withdrawal, All American Canal Lining Project (CA-34475)

Table 3.6-1 Rights-of-Way And Other Entitlements Within The ISDRA Planning Area

Planning Area
<ol style="list-style-type: none"> 1. Strip of Land Acquired by and Under Jurisdiction of BOR (CA-19902) 2. Old Coachella Canal R/W (LA 056654) 3. Underground Fiber Optic Line (AT&T) R/W (CA-41690) 4. Cathodic Protection Unit Site R/W (LA 0158162) 5. State Route 78 (Realigned Portion) R/W (CA-17922) 6. Railroad Spur R/W (CA-29617) 7. Mineral Material Site (LA 0164722) 8. Cathodic Protection Unit Site R/W (R-374) 9. Easement to U.S. for Gordons Well Road (CA-37234) 10. Barrier (U.S. Border Patrol) R/W Reservation (CA-34052) 11. County Road (Old Hwy. 80) R/W (R 01737) 12. Underground Telephone Line R/W (CA-26357) 13. Road R/W (LA 0165008) 14. All American Canal, Telephone Line R/W (LA 077775) 15. Transmission Line R/W (LA 055165) 16. Transmission Line R/W (LA 164553) 17. County Road (Old Hwy. 80) R/W (R 01737) 18. Road, Pipeline, Wells, Transmission Line (CA-21618) 19. Mineral Material Site (LA 0133909) 20. RS 2477 County Road (Vista Mine Road and Zappone Road) R/W (CA-19169) 21. State Highway (Portion of Hwy. 78) R/W (CA-14630) 22. Underground Telephone Line R/W (CA-19125) 23. Road R/W (CA-8503) 24. Road R/W (CA-40791) 25. All American Canal R/W (LA 077775) 26. Seismographic Monitoring Site R/W (CA-2953-22) 27. Transmission Line R/W (CA-5865) 28. Underground Fiber Optic Line (Level 3) R/W (CA-41192) 29. State Highway R/W (R 137) 30. Surveillance Camera and Access Road (U.S. Border Patrol) R/W Reservation (CA-40000) 31. Telephone Line and Road R/W (CA-18904) 32. Temporary Use Permits for Apiary Sites along Coachella Canal

R/W – Right-of-way

As with other BLM-administered lands, rights-of-way and temporary use permits within the ISDRA are normally granted subject to other valid, pre-existing rights including the right of entry unless specifically prohibited. Rights-of-way, temporary use permits, and other similar entitlements are normally not granted if the use for which the right of way is intended would conflict with a valid pre-existing use. Thus, OHV recreational activities still occur on utility rights-of-way within the ISDRA. Entry into lands that have been withdrawn or reserved, on the other hand, is normally precluded for purposes other than those intended for the

withdrawal or reservation. Hence, public entry is prohibited in the military areas noted above.

While most Bureau of Reclamation (BOR)-withdrawn lands have been relinquished within the ISDRA, some of the lands around the U.S. Navy East Mesa Target Area and between the Old and New Coachella Canals remain withdrawn. Under terms of a 1978 agreement, BLM has recreation management responsibility for these lands but must obtain BOR concurrence on all management actions. In addition, BOR retains a withdrawal on the rights-of-way of the new Coachella Canal and All-American Canal (1,000 feet on either side of the canal centerline). BOR must approve BLM management programs initiated within the canal rights-of-way. BOR programs are the paramount use on all BOR-withdrawn lands.

Existing Land Uses

Existing land uses within the ISDRA planning area are primarily recreational, although agricultural, transportation, communication, military, and other uses also occur. Multiple-use classes, as defined in the CDCA Plan (see above), are used to guide land use in the ISDRA; those uses are discussed below. The CDCA Plan also identifies certain areas within the ISDRA as open, limited, or closed to OHV use. Detailed discussions of existing recreational uses in the ISDRA, including OHV uses and camping, are provided in Section 3.1 (Recreational Resources).

Recreational Use And Multiple-Use Classes Within the ISDRA

Lands located within the ISDRA planning area have been assigned to an MUC that defines permitted uses on those lands. Land uses currently occurring within each MUC are described below and are primarily recreation based. Areas with restricted vehicle use or areas that are open or closed to OHV uses are discussed as they occur within each MUC.

Class C

Lands identified as Class C make up the 26,202-acre North Algodones Dunes Wilderness, as created by Congress through the California Desert Protection Act of 1994. Solitude and primitive recreation are the primary land uses within the wilderness. Primitive camping is allowed, but developed camping sites or facilities are not available. No commercial uses are permitted, and the use of motorized vehicles of any kind is prohibited. Most use in the wilderness takes the form of short photographic and sightseeing walks from SR-78, although hiking, backpacking, and nature study trips also occur. The wilderness is closed to OHV use (see Figure 3.6-3).

Class L

Lands identified as Class L (Limited Use) make up most of the southern half of the ISDRA, including much of the central dunes and Pilot Knob Mesa. Limited Use lands are intended to protect sensitive natural, scenic, ecological, and cultural

[View Figure 3.6-3](#)

OHV Designations - 104Kb

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resource values. This class is suitable for recreation that generally involves low to moderate user densities. Developed campgrounds or sites involving concentrated recreational use are generally not allowed in this class. Most of the central dunes Class L area is lightly used, with use consisting primarily of OHV day use with little camping. However, the Ogilby Camp Area is located in Class L lands in the southeastern portion of the ISDRA.

Class M

Class M (Moderate Use) lands are located along the eastern and southern boundaries of the ISDRA and west of Glamis along SR-78. These lands are intended to provide for a balance between higher intensity use and protection of public lands. Recreational use is appropriate at moderate to high densities, and developed recreation sites are permitted. The Class M lands east of Glamis are temporarily closed to camping in accordance with the settlement agreement. OHV use on Class M lands is limited to approved routes of travel.

Class I

Class I (Intensive Use) lands provide for the concentrated use of lands and resources to meet human needs. Recreation activities involving high densities are permitted. Areas of the dunes assigned to Class I include the intensively used OHV areas around Glamis, Buttercup Valley, and Mammoth Wash. The management objective of these areas is to enhance opportunities for OHV recreation. Campgrounds and other facilities are permitted.

High-density camping and OHV uses occur in Class I. Many established campgrounds are located along SR-78, Gecko Road, and I-8. Primarily those participating in OHV activities on Class I lands use these campgrounds. The Class I lands immediately south of SR-78 are the most intensively used. Also intensively used is the Buttercup Valley Class I area, which is located just north and south of I-8. The Class I area near Mammoth Wash at the north end of the ISDRA receives only light-to-moderate use, owing largely to difficulty in accessing it.

Non-Recreational Land Uses

Some BLM-managed land within the ISDRA planning area has not been assigned an MUC. These lands are located along the east side of the ISDRA and parallel the Union Pacific Railroad, as well as additional lands east and north of Glamis. Generally, they were recognized in the CDCA Plan to be lands that may be put to some use other than recreation in the future. The land paralleling the Union Pacific Railroad is designated by the CDCA Plan as a contingency utility corridor, while the land in the vicinity of Glamis may accommodate activities and uses associated with the settlement of Glamis.

In addition to the extensive recreation-based uses that take place within the ISDRA, a wide variety of non-recreational uses take place within or immediately adjacent to the ISDRA.

Agricultural Uses

BOR-withdrawn lands within the ISDRA planning area include those between the Old Coachella Canal the New Coachella Canals. In addition, BOR has maintenance and management responsibility for the New Coachella Canal and the All-American Canal. In addition to the canals, which are critical to supporting the agricultural industry of the Imperial Valley, a number of temporary use permits have been granted for apiaries.

Military

Current Department of Defense activities within the ISDRA planning area focus on over flights to and from the military training areas to the east of the ISDRA, and use of lands in the vicinity of several target areas (Figure 3.6-2). The U.S. Navy and BLM have developed a Cooperative Agreement for management of public lands in range safety zones surrounding Navy Targets 68 and 95 on East Mesa. A Desert Plan amendment necessary to implement the agreement was proposed in 1985. The amendment would close East Mesa lands between Target 68 and the old Coachella Canal to OHV use. Under terms of the Cooperative Agreement, the Navy will review all proposed management actions within Range Safety Zone C, which includes the Gecko Management Area and much of the North Algodones Dunes Wilderness, to ensure conformity with structural height restrictions and other guidelines to safeguard aircraft operations near the targets.

Mining and Quarrying

Mineral materials removal within the ISDRA planning area is restricted to sand and gravel quarrying, and is found to the east of the dunes in the Pilot Knob Mesa area. Freeuse and sales permits have been issued. These uses and resources are discussed in greater detail Section 3.14, Geology, Energy, and Mineral Resources.

Energy Production

The northern half of the ISDRA planning area is closed to all geothermal leasing. The dunes south of the Glamis/Gecko Open Area are open to leasing subject to a no surface occupancy stipulation. All areas outside the dunes proper are open to leasing with appropriate mitigation. Although such activities take place elsewhere in the vicinity of the ISDRA, no geothermal leases have been issued; and no development has taken place within the ISDRA. No development of oil or gas resources has occurred within the ISDRA. These resources are discussed in Section 3.14, Geology, Energy, and Mineral Resources.

Utilities and Transportation

Two major road rights-of-way (SR-78 and I-8) cross the recreation area in an east-west direction, while the Union Pacific Railroad runs northwest to southeast in the eastern ISDRA. The two roads provide the chief access to the ISDRA. A major utility corridor within the recreation area passes through the Buttercup Valley Open Area parallel to I8. Existing facilities include a 500 kilovolt (kV) transmission line and a number of smaller power and telephone lines. Transmission lines also parallel the Coachella Canal and the Union Pacific

Railroad. A high-pressure gas pipeline is located within the railroad right-of-way, and a microwave relay tower is located west of Ogilby.

Commercial and Residential Uses

Commercial land uses within the ISDRA planning area are restricted to those at the Glamis, and the activities of vendors in locations and at times authorized by the BLM. There are also two businesses located in the Planning Area. Most of these vending operations are restricted to high-use periods, chiefly the holidays and during the October through May season, when the population of OHV enthusiasts in the ISDRA swells. No permanent, residential land use occurs on BLM managed lands within the ISDRA, other than at the Cahuilla Ranger Station complex. That occurring on private lands is restricted to the residence for the storeowners at Glamis.

3.7 Visual Resources

Introduction

Visual resources are managed by controlling how the landscape is altered from the natural appearance, and by introducing or maintaining variety into the “seen” area. Visual variety contributes to high-quality recreation experiences. Visual variety at the ISDRA is evidenced by contrasts in the ever-changing sand dunes and vegetation. Most of the landscape appears natural (undisturbed) with very few human-made landscape alterations. Many opportunities exist for undisturbed views that have little human intervention. The composition of the dune formations, fine textures, and color contrast between the darker vegetation and light sand is what gives the ISDRA its distinctive landscape character.

Provided below is a discussion of the regulatory framework of the BLM and a description of the visual resources of the ISDRA.

Regulatory Framework

The BLM has developed a system (the Visual Resource Management [VRM] Program) for evaluating the visual resources of a given area to determine what degree of protection, rehabilitation, or enhancement is desirable and possible. The BLM is concerned with managing visual resources equally with other resources and attaining acceptable levels of visual impact without unduly reducing commodity production or limiting overall program effectiveness.

The purpose of the VRM Program’s is twofold: (1) to manage the quality of the visual environment and (2) to reduce the visual impact of development activities, while maintaining effectiveness in its resource programs. Managing the visual aspects of changes to the natural landscape is particularly important for the BLM because most activities taking place on BLM lands involve some degree of alteration.

Perception of visual quality in a landscape is based on several common principles: Landscape character is determined by four basic visual elements (form, line, color, and texture), which are present in every landscape and exert varying degrees of influence. The stronger the influence exerted by these elements, the more interesting the landscape. Landscapes with more visual variety are more aesthetically pleasing. Variety in the landscape with harmony is considered attractive; landscape alterations that create disharmony are considered unattractive (BLM, 1980).

The BLM has not formally inventoried the lands within the ISDRA, nor has it given those lands relative visual ratings (Management Classifications), according to the VRM Program. However, these ratings will be developed based on the multiple use class later in this chapter. There are five Visual Resource Management Classes (VRM Classes) to describe the different degrees of modification allowed to the basic elements of the landscape. These are briefly described below:

Class 1: Natural ecological changes and very limited management activity area allowed. Any contrast created within the characteristic landscape must not attract attention. This classification is applied to wilderness areas, wild and scenic rivers, and other similar situations.

Class 2: Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. Contrasts are seen, but must not attract attention.

Class 3: Contrasts to the basic elements caused by a management activity are evident, but should remain subordinate to the existing landscape.

Class 4: Any contrast attracts attention and is a dominant feature of the landscape in terms of scale; but it should repeat the form, line, color, and texture of the characteristic landscape.

Class 5: The classification is applied to areas where the natural character of the landscape has been disturbed to a point where rehabilitation is needed to bring it up to one of the four other classifications. The classification also applies to areas where there is potential to increase visual quality of the landscape. It would be applied, for example, to areas where unacceptable cultural modification has lowered scenic quality; it is often used as an interim classification until objectives of another class can be reached.

The BLM currently manages the lands within the ISDRA according to the Multiple-Use Classes listed in the California Desert Conservation Area Plan. The CDCA Multiple-Use Classes are discussed in Chapter 2 and illustrated in Figure 3.7-1.

The VRM Classes that are associated with these Multiple-Use Classes are listed in the following table.

VRM Classes Associated with the Multiple-Use Classes Assigned to the Imperial Sand Dunes Recreation Area

Assigned Multiple-Use Class ^a	Associated VRM Class
Class I Intensive Use	VRM Class 4
Class M Moderate Use	VRM Class 3
Class L Limited Use	VRM Class 2
Class C Controlled Use	VRM Class 1

VRM Class 5 was not assigned to any of the Multiple-Use Classes because none of the lands in the ISDRA have been degraded to the point where they require rehabilitation.

Figure 3.7-1 depicts the VRM Classes associated with the Multiple-Use Classes that are assigned to ISDRA lands by management areas. Although the management areas do not exactly fall within the multiple use class, geographically, the following table will provide a

general overall classification of the management areas as a whole. (However, a visual assessment conducted without regard to the multiple use class may result in different classifications, such as Mammoth Wash Management Area would most likely be VMR class 2.) As shown in Figure 3.7-1, the popular dune areas and campgrounds within the ISDRA also can be categorized according VRM Classes.

Visual Resource Management Classes of OHV Use and Camping Areas

VRM Class 1	VRM Class 2	VRM Class 3	VRM Class 4
North Algodones Dunes Wilderness	Dune Buggy Flat Management Area	Glamis Management Area	Mammoth Wash Management Area
	Adaptive Management Area		Buttercup Management Area
	Ogilby Management Area		Gecko Management Area

Existing Visual Resources

The following description of the visual resources of the landscape at various areas within the ISDRA is based on a site visit conducted on October 16 and 17, 2001. The climatic conditions during the site visit included cloudy skies, no wind, and temperatures estimated to be in the 90s degrees Fahrenheit. The ISDRA is a mostly undeveloped area consisting of sand dunes ranging in elevation from approximately 100 to 640 feet, depending on location within the dunes. The differing shapes of the dune forms add interest to the landscape. The homogeneous sand color and the fine sand texture provide a strong contrast to the blue sky and add visual interest to the view. Certain dunes, such as Competition Hill, have horizontal ridges across the dune hills. These ridges are known as “whoop-de-do’s.” They add texture to the visual landscape, as do the vehicle tire tracks on the dunes.

The dunes present a spectacular landscape. From the interior of the dunes, views in all directions are of dunes that are smooth, rounded hills of fine-textured, light-colored sand. Most of the dunes are devoid of vegetation. The unvegetated dunes do not provide much variety in view, but present an interesting one that is enhanced by the stark contrast of the dunes against the blue, clouded sky. The dunes that have low-lying shrub vegetation scattered across them also provide visual interest due to the contrast in texture and color provided by the vegetation and the color contrast provided by the sky. The dunes are of varying sizes, heights, and shapes due to winds blowing the sand and OHV use patterns. The closed areas and the wilderness area appear pristine, with no vehicle tracks visible. Most of the ISDRA lacks human-made development.

[View Figure 3.7-1](#)

Visual Resource Management Areas by MUC - 82Kb

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Development within the ISDRA includes the Cahuilla Ranger Station, the vendor areas, the Glamis Beach Store, and the development at certain campgrounds. Other human-made development is concentrated at or near the boundaries of the ISDRA recreational management area boundary. This includes the Union Pacific Railroad tracks and pipeline aboveground markers that exist along the eastern boundary of the recreation management area, the overhead electric distribution line, and the New Coachella Canal that exists along the western edge. SR-78 is the major easterly trending two-lane road that crosses the ISDRA at the southern edge of the North Algodones Dunes Wilderness. I-8 also is an easterly trending roadway near the southern edge of the ISDRA, and the All American Canal parallels I-8 on its north side. High-voltage electric transmission line development also occurs in the southern area and a communications tower exists near the Ogilby Camp Area. This development near the ISDRA boundaries reflects the character of a more urban developed area.

The ISDRA is open year-round; however, due to high summer temperatures, use tends to occur from October through Easter of each year. In addition, use on weekdays is minimal, and use on most weekends is moderate. The peak season is concentrated into six holidays: Halloween, Thanksgiving weekend, New Years, Martin Luther King Day, President's Day, and Easter break (which lasts a few weeks due to the differing "spring breaks" offered by various schools).

Although OHV use occurs throughout the open areas of the ISDRA, certain areas receive higher levels of use, such as Osborne Lookout, Competition Hill, Oldsmobile Hill, Brawley Slide Hill, Patton Valley, Test Hill, and Plank Road. During the mid-week site visit, only a few recreationists were present at these locations. Views of these areas revealed large open expanses of land (sand dunes and the flat open, sandy areas). The areas appeared relatively pristine, lacking both much human-made development and signs of heavy recreation use. Vehicle tire tracks and boundary posts were the only signs of use/development across the dunes. The high use that occurs at these areas at peak times reflects the BLM's VRM Class 4 management of these areas.

Mammoth Wash, at the northern end of the ISDRA, receives minor use due to its remoteness. This area has dunes that are smaller than the areas further south, so less OHV opportunity exists there. This northern area has private land interspersed with BLM land. Grapefruit orchards abut the dunes, which adds color, texture, line, and form variety to the dune landscape.

OHV users intent on camping concentrate use at the Gecko Campground, Keyhole Campground, Roadrunner Campground, The Washes, Ogilby Camp Area, Buttercup Campground, and Midway Campground. During the site visit, these camp areas appeared to be vacant, vast expanses of level sand, some of which had restroom buildings and trash dumpsters, but no other development visible. These areas also appeared relatively pristine, except for the restroom and trash facilities and the signage that exists at certain areas. Photographs of these areas during peak-use weekends show these areas overflowing with recreational vehicles, OHVs, camping equipment, and recreationists, which result in a strong

visual contrast to what was seen during the site visit. Review of these photographs provides a more accurate picture of the intensive use that occurs within these VRM Class 4 areas.

The Cahuilla Ranger Station, located just south of SR-78 on Gecko Road, consists of a small building and fenced equipment/vehicle storage yard. Also on Gecko Road is a vendor concessionaire area. At the time of the site visit, it was mostly vacant. One vendor, who stays there year-round, was present. The presence of vendors in this area during the peak use times of the year reflects a human-made character that strongly contrasts with the natural, undeveloped character of the dunes.

Osborne Lookout is located approximately 3 miles east of the Cahuilla Ranger Station on the south side of SR-78. It consists of a gravel parking area where camping is allowed at the southern end and day use viewing is allowed at the northern end of the area. Views to the east from the lookout are of rolling dunes in the foreground and middle ground, and of the Black Mountains in the background. To the north are the North Algodones Dunes Wilderness in the foreground and the Chocolate Mountains in the distance. Views to the west and south are of the dunes.

The microphyll woodland area, located to the east of Oldsmobile Hill, is heavily vegetated due to flash floods that occur there. The abundance and type of vegetation present in this area is not characteristic of much of the ISDRA. This area exhibits much color and texture that is not seen in other areas of the ISDRA.

The Wildlife Viewing Area, near the North Algodones Dunes Wilderness, is the only interpretive area away from the Cahuilla Ranger Station. The viewing area includes explanatory wildlife and habitat information on interpretive boards. Motorized vehicle use is not allowed or evident away from the viewing area within the wilderness area.

The Plank Road area provides a historic view of a wood plank road constructed in the early 1900s to allow motorists to cross the desert. Fragments of the Plank Road remain, and a small area of a replica of the Plank Road has also been constructed to show the public how the historic road once appeared. Interpretive information is also displayed at the partially fenced Plank Road area.

Two different types of Border Patrol barriers exist along I8 on its south side to the west of the Buttercup Campground. The purpose of these barriers is to exclude illegal aliens from entering the United States from Mexico. These barriers provide varying levels of effectiveness. The barriers are painted white with red accents. Their form, color, and line contrast with the undisturbed desert landscape; however, this area is also a utility corridor that includes several high-voltage electric towers of varying designs.

To the east of the ISDRA and the Planning Area, is the Mesquite Mine (located to the east of the Union Pacific Railroad tracks). The mine includes the Mesquite Mine Overlook Trail, a 3-mile-long gravel trail that climbs a hill. It provides benches for resting, interpretive displays along the trail, and wheelchair access for the first portion of the trail. Views from the

Mesquite Mine Overlook include the sand dunes, the mining area, and tailings. To the southwest, there is an unobstructed view of Oldsmobile Hill from this location.

Views from Ted Kipf Road traveling southeast from The Washes toward Ogilby Road include visible mining scars in the Cargo Muchacho Mountains to the east.

3.8 Water Resources

Introduction

The Imperial Sand Dunes Recreation Area is located in the desert southeastern California, an area marked by long, hot summers and meager rainfall. Surface water in the extended vicinity of the ISDRA includes the Salton Sea, the Colorado River, and the Gulf of California. Other than canals that carry Colorado River water to the Imperial Valley, water resources in the immediate vicinity of the ISDRA are quite limited.

Surface Waters

There are two primary surface waterways in the vicinity of the ISDRA, the All American Canal and the New Coachella Canal.

All American Canal

All-American Canal is approximately 80 miles long and is part of the federal irrigation system of the Hoover Dam. The canal was built between 1934 and 1940 across the Colorado Desert and is entirely within the United States. Water is diverted from the Colorado River into the canal at the Imperial Dam. Flow proceeds in a westerly direction, and smaller distributary canals carry water from it into the Imperial Valley and Coachella Valley. This canal system irrigates more than 600,000 acres in the Imperial and Coachella agricultural region, and has greatly increased crop yield in the area.

The All American Canal has a bottom width of approximately 160 feet and depth of about 21 feet. The canal is lined with clay to minimize seepage. The capacity of the canal is 10,155 cubic feet per second (cfs) in the vicinity of the ISDRA. Although the All American Canal is lined, a substantial amount of water is believed to be lost through seepage.

Coachella Canal

The New Coachella Canal is connected to the All American Canal at what is known as Drop 1 in the southern ISDRA near I-8 (see Figure 1-2). The Coachella Canal originally was completed in 1949 as an unlined channel and had a flow capacity of approximately 2,500 cfs. The canal extends northwesterly from Drop 1 (All American Canal) for approximately 123 miles and runs along the east side of the Salton Sea and west of the Plan Area. The first 48 miles of the Old Coachella Canal were replaced with a new canal called the New Coachella Canal in the early 1980s due to concerns about water loss through seepage in the East Mesa area. The Old Coachella Canal is no longer used to transport water.

The 48-mile New Coachella Canal has a flow capacity of approximately 1,550 cfs and is concrete lined to prevent seepage. Operating roads are located along either side of the newer canal. The New Coachella Canal has a bottom width of approximately 16 feet and ranges in depth from 10 to 12 feet. It runs northeast near the proposed Dune Buggy and Gecko Management Areas, and also provides a feature used to delimit the borders between the ISDRA and the Planning Area (see Figure 1-2).

Wildlife Guzzlers

Seepage along the Old Coachella Canal resulted in a greenbelt and pools along the canal that supported various forms of wildlife. With construction and operation of the New Coachella Canal and the subsequent retirement of the southern portion of the Old Coachella Canal, wildlife dependent on the greenbelt and pools no longer had a water source. To partially mitigate the loss of this wetland habitat, the California Department of Fish and Game installed four windmill wells in the North Algodones Dunes Wilderness Management Area and two windmill wells in the Mammoth Wash Management Area to the north. More recently, solar panels and electric pumps replaced the windmills. The wildlife guzzlers have created limited wetland and green areas within the northern portion of the ISDRA that provide vegetation and water for wildlife.

Ephemeral Surface Flows

Numerous washes that carry storm runoff exist within the ISDRA. These are particularly evident as generally east to west flowing channels that have incised the distal alluvial fans of the Chocolate Mountains and the Cargo Muchacho Mountains in the eastern portion of the ISDRA. Ephemeral surface flows and pools form in the washes and low points in the eastern transition areas as a result of infrequent runoff events caused by cloudbursts in the nearby mountains. The ephemeral surface flows and pools most commonly occur in the springtime of wet years, but can also occur at other times. The pools do not remain for long periods following rains due to the permeable nature of the soils in this area.

Groundwater

The ISDRA is located within what recently has been termed the Amos-Ogilby-East Mesa groundwater basin (RWQCB, 2001). The basin is a northwesterly trending, elongated area of approximately 860 square miles within the southeastern portion of Imperial County, California, generally following the alignment of the trough of the Gulf of California north to the Salton Sink. It is bounded on the east by the Chocolate and Cargo Muchacho Mountains, on the north by the surface drainage/groundwater divide that separates the Amos Basin from the East Salton Sea Basin, on the west by the finegrained, less permeable sediments of the central Imperial Valley, and to the south by the boundary with Mexico. The alluvial sediments that make up the water-bearing aquifer range in thickness from 0 feet on the eastern boundary at the Chocolate Mountains to as much as 10,000 feet at the western boundary of the basin in the Imperial Valley. Depth to groundwater in the ISDRA is estimated to be several hundred feet below ground surface.

Beneficial Use Designations

The ISDRA is located in the Colorado River Basin within the jurisdiction of the Regional Water Quality Control Board District 7 (RWQCB7). The Colorado River Basin includes all of Imperial County and portions of San Bernardino, Riverside, and San Diego Counties. The RWQCB7 approved the *Basin Plan for the Colorado River Basin* in 1993; and this plan

established beneficial use designations for the All American Canal, Coachella Canal, and the Amos-Ogilby hydrologic unit. The beneficial uses of these water sources are presented in the table below.

Beneficial Use Categories

Category	All American Canal	Coachella Canal	Amos-Ogilby Unit
Municipal and Domestic Supply	X	P	X
Agricultural Supply	X	X	
Aquaculture	X		
Industrial Service Supply	X		
Groundwater Recharge	X	X	
Water Contact Recreation	X	X	
Noncontact Recreation	X	X	
Warm Freshwater Habitat	X	X	
Wildlife Habitat	X	X	
Hydropower Generation	X		
Freshwater Replenishment	X		
Preservation of Rare, Threatened, or Endangered Species	X	X	

Source: 1993 Basin Plan – Colorado River Basin.

3.9 Cultural Resources

Overview

Although an arid area, the ISDRA contains evidence of human activity from prehistoric times to the present. The eastern desert of Imperial County has served as a transportation corridor, with the Algodones dune fields encouraging most travelers to seek routes to the north or south of the Plan Area until the early 20th century.

Prehistory

The ISDRA was utilized prehistorically by a variety of Native American groups, including the Yuman-speaking Quechan and Kumeyaay (Kamia) and possibly the Takic-speaking Cahuilla. The extreme aridity of the dunes suggests that permanent habitation sites probably do not exist there; but temporary camps, resource acquisition and processing sites, and travel corridors are known to occur, especially around the dune margins.

Well-documented human occupation of the southern California Deserts occurred as early as 12,000 years ago, but some researchers have posited much earlier occupations as well. The Paleoindian period is manifested locally by the San Dieguito Complex, dating from about 12,000 to about 7,000 years ago. Most evidence suggests that these peoples were highly nomadic hunter-gatherers, who ranged widely across the arid Southwest. The subsequent Archaic period from about 7,000 to about 1,500 years ago is much better documented in surrounding areas, such as the Mojave Desert, the California coast, and Sonoran Desert in Arizona, than in the Lower Colorado Desert. Very few Archaic period sites have been found in Imperial County, due, in part, to arid conditions and loss due to Colorado River erosion and other impacts (Schaefer, 1994). Human occupation increased dramatically after 1,500 years ago. Archaeologists believe that ancestral Yuman-speaking groups settled along the Lower Colorado River during this time when the manufacture of pottery was first introduced. Agriculture, including the cultivation of maize, was also introduced, leading to increased populations. During this time, hydrological changes in the Colorado River delta caused the river to flow north into the Salton basin and form a vast freshwater lake known as Lake Cahuilla. Native American groups from the river to the east and the Peninsular and Transverse ranges to the west occupied the shores of the lake at least on a temporary basis. During the Late Prehistoric period, long-distance travel for trade, warfare, and religious pilgrimages was a common practice. Travel corridors probably traversed the Dunes, although major trails also skirted the deep sand.

Yuman-speaking Indians included the area in their tribal territory when Spaniards began to exert influence in the region in the late 1770s. Major settlements for these aboriginal groups were typically located in the mountains to the west or along the Colorado River to the east. Groups would collect resources in the Plan Area and return to larger encampments.

History

Early Spanish incursions into the Lower Colorado region began in 1540, although Spanish influence was relatively minor until the 18th century. Relationships with the local inhabitants

were not always good. Initially most development occurred along the Colorado River. In the mid-1880s, to support local mining efforts, the Southern Pacific Railroad built a line that crosses what is now the eastern portion of the ISDRA. Regular service on the route began in 1877. Small communities, such as Ogilby, developed at some of the stops along the line. Around the turn of the century, the Imperial Valley experienced considerable population growth after the construction of irrigation projects. To the present day, Imperial Valley is an important agricultural area. In 1915, the planning and hard work of a group of businessmen, including Edward Fletcher and Edwin Boyd, resulted in the construction of the first plank road through the dunes (PHR Associates and Carrico, 1989). At one time, there were 8 miles of the wooden road, providing a route that shortened travel time from San Diego to Yuma by 2 days (Bates, 1970). During World War II, undeveloped portions of southeastern California, western Arizona, and southern Nevada became a vast military training area. Camp Pilot Knob, located west of the ISDRA, was one of the desert military training camps established by General George S. Patton, Jr. This large temporary settlement comprised 3,000 tents occupied by the 55th Infantry Division. In 1943, they used the camp and the surrounding areas, including the dunes, for military training maneuvers.

The 1970s and 1980s saw several construction projects in the southern part of the recreation area, with the replacement of SR-80 with I-8 and the construction of a 500-kV transmission line. These features joined the All American Canal, which had been built in the 1930s.

Current Inventory

A records search was conducted at the South East Archaeological Information Center to identify previous studies in the area and to locate known cultural resources. One cultural resource site currently featured for visitors to the ISDRA is the Plank Road, portions of which can be viewed adjacent to I-8. In 1985, the BLM designated the Plank Road an ACEC. The Plank Road, All American Canal, and Coachella Canal all are eligible for the National Register of Historic Places (NRHP).

Surveys

At least 20 archaeological studies have been conducted within the limits of the ISDRA. Some of the earliest documented work was in the 1950s, with the majority of surveys being carried out in the 1980s and 1990s. Many of the inventories were associated with linear projects (highways, canals, pipelines, and transmission lines). An exception to this was a major sample survey effort that the BLM conducted in the late 1970s and early 1980s. In this study, a large number of 1-mile by ¼-mile transects were surveyed throughout the dunes (Bull, 1981). Despite a number of studies having been conducted, most of the ISDRA has not been inventoried for cultural resources (see the table below).

Based on the records search results, the level of survey appears to vary in different parts of the ISDRA. The southern portion of the ISDRA has been subject to the most survey investigations. These investigations were generally associated with infrastructure projects and the BLM sample survey. A stratified random sample survey of 3% of the entire dune system and an additional 2% sample of the Quaternary alluvium within the dunes and dune edges was undertaken in the spring of 2002. This 5% sample of the dune system yielded four

archeological sites: three pottery shards scatters and a historic military marksmanship training site.

Reported Survey Coverage By ISDRA Management Area

Management Area	Approximate Survey Coverage
Mammoth Wash	<1%
North Algodones Dunes Wilderness	<2%
Gecko	5%
Glamis	<3%
Dune Buggy	16%
Adaptive Management	6%
Ogilby	<1%
Buttercup	14%
Planning Area	<1%

Cultural Resources

Over 124 cultural resources are recorded in the planning areas, which includes the ISDRA and the Planning Area. Of these cultural resource sites, 24 are recorded within the dunes system itself. As the table below indicates, most of these are prehistoric archaeological sites, representing a range of activities. Although fewer historic period resources have been identified, these reflect the major historic themes of the region: mining, transportation, irrigation projects, and military activity.

ISDRA Cultural Resources Summary

Prehistoric Resources		Historic Period Resources	
Lithic scatters	6	Debris scatter/dump	17
Ceramic scatters	40	Military encampment	3
Habitation areas/temporary camps	9	Plank road/Roads/Railroad	5
Cleared circle	1	Canal	2
Lithic and ceramic scatter	7	Transmission line	1
Cremation	2	Rock features	1
Isolated finds	14	Movie set/Townsite/Graveyard	4
		Isolated finds/Other	14
Total	79	Total	47

As indicated in the table below, most of the known cultural resources have been identified in the Planning Area and Ogilby Management Areas although the size of the Management Areas varies widely.

Known Cultural Resources By ISDRA Management Area

Management Area	Prehistoric Resources		Historic Resources		Total
	Sites	Isolates	Sites	Isolates	
Mammoth Wash	3	0	1	0	4
North Algodones Dunes Wilderness Area					1*
Gecko	4	0	1	0	5
Glamis	1	1	2	2	6
Dune Buggy	13	0	0	0	13
AMA	2	0	3	1	6
Ogilby	11	3	7	1	22
Buttercup	7	3	2	0	12
Planning Area	21	7	13	9	50
Resources in Multiple Management Areas	0	0	4	0	4

*One resource reported but not identified.

Seven Native American tribes with heritage associations with the dunes were contacted in the Spring of 2002 for the purpose of conducting consultation. In addition, members of these tribes were interviewed about present and past connections with the dunes to identify traditional cultural properties and assess the dunes as a cultural landscape. The results of the interviews indicate that the dunes have some cultural significance for contemporary Native Americans, but do not meet the criteria set forth under the National Register of Historic Places. All groups interviewed expressed concern about damage to the dunes landscape by recreational use.

Management Practices

Actions, including projects involving ground disturbing activities, which have the potential to have an effect on cultural resources meeting the criteria eligibility of the National Register of Historic Places are subject to review under the National Historic Preservation Act. Review is accomplished in accordance with Section 106 of that Act, BLM's National Programmatic Agreement with the Advisory Council on Historic Preservation and the National Conference of State Historic Preservation Officers, and the State Protocol Between California BLM and the California State Historic Preservation Officer. Specific actions which occur through implementation of this plan and which could have an effect on eligible resources will be reviewed following the above cited law and agreements.

3.10 Transportation and Traffic

This discussion addresses the existing vehicular traffic at the ISDRA. The scope of the analysis is limited to major public roads that provide access to the Plan Areas.

Existing Access

Figure 3.10-1 shows the existing access to the Plan Area that extends for more than 40 miles long and 5 miles wide near the borders of California, Arizona, and Mexico. I-8 is the only freeway providing access through the south side of the Plan Area. It is a four-lane facility linking San Diego and Arizona. SR-98 is an arterial branch from I-8 south of El Centro. It terminates and joins I-8 approximately 15 miles west of the Plan Area. SR-78 is an east-west oriented highway traversing across the central part of San Diego and Imperial Counties. It provides access to the northern end of the Plan Area and traverses north to link with I-10. Ogilby Road is a county road (S-34) linking SR-78 and I-8 along the eastern edge of the Plan Area.

Existing Traffic Volumes

Figure 3.10-2 shows 1999 and 2000 traffic volumes on major access roadways in the vicinity of the Plan Area. The heaviest traveled segment of roadway is on I-8 west of Sidewinder Road. It has an Average Annual Daily Traffic (AADT or ADT) volume of 13,000 vehicles and a peak-hour volume of 1,850 vehicles. The existing Level of Service (LOS) for roadway segments in the vicinity of the Plan Area is summarized in the table below.

Table 3.10-1: 2000 Level of Services

Route	Segment	Peak-Hour Volume	Level of Service (LOS)	Notes
I-8	West of SR-98	1,400	B	HCM ¹ -98
I-8	East of SR-98	1,650	B	HCM-98
I-8	Buttercup	1,700	B	HCM-98
I-8	East of Ogilby Rd	1,750	B	HCM-98
I-8	East of Sidewinder Rd	1,850	B	HCM-98
SR-98	West of I-8	160	A	$v/c=0.05$, rolling terrain, no passing 80%
SR-78	West of Glamis	530	C	$v/c=0.19$, rolling terrain, no passing 80%
SR-78	East of Glamis	290	B	$v/c=0.10$, rolling terrain, no passing 80%
SR-78	East of Ogilby Rd	450	C	$v/c=0.16$, rolling terrain, no passing 80%

¹HCM: Highway Capacity Manual, Transportation Research Board, National Research Council, Figure 3-4

² v/c : Volume over capacity ratio

LOS is a measure of the quality of traffic operations based on selected factors of the type of roadway. LOS are designated from A through F. LOS A represents the best operation condition with significant freedom of maneuver, while LOS F signifies a severely congested situation with extensive delays. LOS C is generally accepted as the threshold for rural highways. The evaluation of LOS is based on methods recommended in *The Highway Capacity Manual* (HCM) published by Transportation Research Board of the National Research Council.

The table above indicates that all segments of roadways are operating at LOS C and better. The I-8 freeway is operating at LOS B in the vicinity of the Plan Area. It is based on the 55-mile-per-hour (mph) free-flow speed and the HCM density flow rate chart for basic freeway segments. The LOS on SR-78 varied from A to C, based on HCM LOS chart for a two-lane highway on rolling terrain and the assumption that no passing zones comprise 80 percent of the routes.

Figure 3.10-3 shows the distribution of recreational traffic related to ISDRA on existing roadway network. The distribution factors are derived from the *Imperial Sand Dunes Visitor Research Case Study* prepared in 1993 by the BLM. The table below shows the percentage of ISDRA traffic on the major highway segments providing access to the Plan Area. It is noted that the annual ISDRA traffic has a more significant share on SR78 west of the Plan Area. It is 17.3 percent of the total annual traffic. The percentages of ISDRA traffic on I-8 are 5.4 percent west of the Plan Area and 0.7 percent east of the Plan Area. The shares on I8 are relatively low because it is an interstate freeway carrying a significant amount of regional traffic between California and Arizona. Based on the annual traffic share volumes, it is observed that the segment of SR-78 west of the Plan Area would be more sensitive to the ISDRA RAMP that dictates future traffic projections.

Table 3.10: Annual Shares of ISDRA Traffic¹

Access	ISDRA Traffic		Total Traffic		% of Traffic Related to ISDRA
	% Distribution	1999/2000 Annual ISDRA Traffic	2000 AADT ²	2000 Annual Total Traffic	
I-8 West	50	247,830	9,500	3,467,500	7.1
I-8 East	8	39,669	12,200	4,453,000	0.9
SR-78 West	32	158,675	1,900	693,500	22.9
SR-78 East	8	39,669	1,650	602,300	6.6
SR-98 West	2	9,917	1,450	529,300	1.9

¹Based on annual project generated traffic of 495,860

²Annual Average Daily Traffic (AADT)

Source: California Department of Transportation

View Figure 3.10-1

Existing Access- 75Kb

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[View Figure 3-10-2](#)

Existing Traffic Volumes - 99Kb

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View Figure 3.10-3

Distribution of Existing Traffic - 78Kb

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Seasonal Fluctuation and Peak -Hour Volumes

Historical records of ISDRA attendance indicate that it has a highly concentrated seasonal fluctuation typical of rural resort areas. The table below estimates the seasonal concentration of ISDRA attendance.

Table 310.3: Peak Attendance as ISDRA (2000-2001)

Peak Period	Duration	Percent of Annual Attendance
Halloween	6 days	7
Thanksgiving	8 days	12
New Year	6 days	8
Martin Luther King's Birthday	6 days	5
President's Day	6 days	10
Easter	5 days	8
Non-holiday (October – May)		50

The table above shows that the six peak holiday seasons between mid-October and mid-April accounted for 50 percent of the visits. The Thanksgiving week is the most crowded week and contributed 12 percent of annual attendance.

3.11 Noise

Fundamentals of Noise

Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. There are several ways to measure noise, depending on the source of the noise, the receiver, and the reason for the noise measurement. Environmental noise levels are typically stated in terms of decibels on the A-weighted scale [dB(A) or dBA]. Noise levels stated in terms of dBA reflect the response of the human ear by filtering out some of the noise in the low- and high-frequency ranges that the ear does not detect well. The A-weighted scale is used in most community ordinances and standards. Human hearing typically encompasses the sound range from just above 0 dBA at the quietest end to approximately 140 dBA, where pain is produced in most listeners and permanent hearing loss would result.

Regulatory Framework

The Noise Element of the Imperial County General Plan provides a program for incorporating noise issues into the land use and planning process, with a goal of minimizing adverse noise impacts to sensitive noise receptors. The Noise Element establishes goals, objectives, and procedures to protect the public from noise intrusion. The Noise Element for Imperial County is applicable to lands owned or zoned by the county. However, lands regulated by the state or federal government, such as the ISDRA, are preempted from local land use policy (Imperial County, 1993).

Existing Noise Environment

The ISDRA is in a relatively remote desert region of the southeastern portion of the state. The Chocolate Mountains and Cargo Muchacho Mountains are located to the north and east of the Plan Area. The town of Brawley is located to the west, and Mexico is located to the south. Recreational activities that occur on ISDRA include OHV use, camping, hiking, and flora/fauna observation.

In deserts where the natural sound pressure levels are very low, vehicular use on a route associated with recreational activities, affect hearing in some vertebrates. Natural deserts do not exceed 66 decibels, and no desert animal creates sounds above 56 decibels. Mechanized sounds increase the decibels in the desert. A motorcycle ranges from 40 to 100 decibels. Within 100 meters, the peak decibels created by a motorcycle exceed those of naturally occurring sounds. It has been shown that prolonged noise can adversely affect some lizards (e.g., desert iguana, Mohave fringe-toes lizard). Laboratory studies show that dune buggy sounds, collected from the Imperial Valley, of moderate intensity and short duration cause hearing loss in Colorado Desert fringed-toed lizards. However, it is not known whether or not vehicle noise at levels and durations anticipated in the desert negatively impact flat-tailed horned lizards. Exposure to vehicle sounds reduced hearing detection abilities in desert kangaroo rats for three weeks. Hearing reductions lead to the animals' inability to detect its

predator, the sidewinder, for those three weeks. Effects are more likely where prolonged, loud noise occurs. (Brattstrom and Bondello, Scharf)

Ambient noise level measurements for the Plan Area are not available. However, ambient noise levels in the Plan Area and vicinity generally are assumed low and typical of remote desert areas (i.e., 35 to 50 dBA), except as may be modified by noise-generating activities in the Plan Area and vicinity, including:

- Noise from train movements on the Union Pacific (formerly the Southern Pacific) Railroad tracks located along the east side of the Plan Area

- Noise associated with occasional recreational and support activities, especially both concentrated and dispersed OHV uses of the Plan Area and immediate vicinity

- Vehicular traffic noise on major roadways leading to the Plan Area

- Intermittent military aircraft maneuvers and military weapons explosions associated with the use of the Chocolate Mountain Aerial Gunnery Range (CMAGR) located to the northwest of the Plan Area and a gunnery range north of East Mesa

- Occasional military aircraft overflights associated with flight corridors located above and adjacent to the Plan Area

- Military helicopter use of the Plan Area as a training ground for the use of night vision devices

- Border Patrol helicopter use of the Plan Area as a part of providing medical aid, and as a part of apprehending undocumented immigrants and smugglers

- Mineral exploration, including drilling by Glamis Imperial under existing BLM approvals

- Natural sources such as wind, rain, thunder, and wildlife

OHV Noise Levels

OHV activities and vehicular traffic on local roads are the primary noise sources in the Plan Area. OHV noise levels are variable, with older vehicles producing higher noise levels than newer ones. California Vehicle Code Section 38370 requires that decibel levels (measured at 50 feet) for Green Sticker vehicles be below: (a) 92 dbA for any such vehicle manufactured before January 1, 1973, (b) 88 dbA for any such vehicle manufactured on or after January 1, 1973, and before January 1, 1975, (c) 86 dbA for any such vehicle manufactured on or after January 1, 1975, and before January 1, 1986, and (d) 82 dbA for any such vehicle manufactured on or after January 1, 1986. According to data from *Dirt Wheels* Magazine, and tests from Oregon Dunes National Recreation Area, even with mufflers, noise levels from ATVs are found to be in the range of 81 to 111 dBA per unit at a distance of 20 inches

(Scharf, 1999). A noise level of 111 dBA at 20 inches is estimated to attenuate to a level of approximately 85 dBA at a distance of 50 feet.

San Diego County performed a preliminary study of various OHV routes (OHV Route Location Study) in 1999 to identify and recommend OHV routes in the county. As part of that study, the county performed a preliminary noise analysis. Based on feedback from the San Diego Off-Road Coalition and input from the State Off Highway Motor Vehicle Recreation division (California State Parks), the county determined that a noise level of 92 dB was appropriate in their study (San Diego County, 2001). For purposes of this section, 92 dBA will be the assumed noise level at 50 feet for OHV use within the ISDRA.

The level of OHV activities in or near the Plan Area varies throughout the year, with little, if any, OHV use and noise during the summer months. Virtually all OHV usage in ISDRA occurs from approximately mid-October to May, with approximately 50 percent of total annual OHV usage occurring on the following six weekends: Halloween, Thanksgiving, New Years, Martin Luther King Jr., President's Day, and Easter. During these high-use weekends, OHV-related noise levels at the ISDRA can be relatively high within certain areas of the Plan Area. The remaining 50 percent of annual OHV usage occurs primarily on other weekends throughout the October-May period. Therefore, background OHV noise levels in and around the Plan Area range from low (during weekdays) to moderate during moderate-use weekends, and high during the six high-use weekends.

Sensitive Receptors

Sensitive noise receptors are, in general, those areas of human habitation or substantial use where the intrusion of noise has the potential to adversely impact the occupancy, use, or enjoyment of the environment. These can include residences, schools, hospitals, parks, and places of business requiring low levels of noise. Since the Plan Area is situated in a very remote area, there are no such typical sensitive human receptors in or anywhere near the Plan Area. The Cahuilla Ranger Station is located within the Plan Area, but is considered part of the administration of the ISDRA and therefore not a sensitive receptor. Hiking and flora/fauna observation activities that occur in the North Algodones Dunes Wilderness area may be more enjoyable in a quiet environment.

The closest area of likely sensitive receptors would be an unincorporated area of Imperial County located just west of East Mesa and the East Highline Canal (approximately 7 miles west of the Plan Area). The town of Brawley is located farther west, approximately 25 miles to the west of the Plan Area.

3.12 Air Quality

Definition of Resource

Air quality is defined by ambient air concentrations of specific pollutants determined to be of concern with respect to the health and welfare of the general public. National air quality policies are regulated through the Federal Clean Air Act (CAA) of 1970 and its 1977 and 1990 Amendments. Pursuant to the CAA, the U.S. Environmental Protection Agency (EPA) established national ambient air quality standards (NAAQS) to protect the public health and welfare from the effects of air pollution. Current standards are established for six air pollutants: carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), PM₁₀, and lead (Pb). These pollutants are referred to as “criteria” pollutants because numerical health-based criteria have been established for each that define acceptable levels of exposure. Areas that violate a federal air quality standard are designated as nonattainment areas.

Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as CO, SO₂, Pb, and some particulates, are emitted directly into the atmosphere from emission sources. Secondary pollutants, such as O₃, NO₂, and some particulates, are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes. In general, emissions that are considered “precursors” to secondary pollutants in the atmosphere (such as reactive organic gases (ROG) and oxides of nitrogen (NO_x), which are considered precursors for O₃) are the pollutants for which emissions are evaluated to control the level of O₃ in the ambient air.

The California Air Resources Board (CARB) subsequently established the more stringent California Ambient Air Quality Standards (CAAQS). Areas within California in which ambient air concentrations of a pollutant are higher than the state or federal or both standards are considered to be non-attainment for that pollutant. Table 3.12-1 shows both the federal and state ambient air quality standards.

EPA has revised the NAAQS several times since their original implementation and will continue to do so as the understanding of the health effects of exposure to pollution is improved. New standards for 8-hour O₃ and PM_{2.5} were proposed on September 15, 1997; and policies and systems to implement these new standards will be developed in the coming years. Compliance with these new standards will be addressed during the next update of the applicable regional air quality plan, if sufficient monitoring data are available. In some cases, there may be delays of several years to allow data collection to determine baseline levels.

Table 3.12-1 California and National Ambient Air Quality Standards				
Pollutant	Averaging Time	California Standards¹	National Standards²	
		Concentration³	Primary^{3,4}	Secondary^{3,5}
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	0.12 ppm (235 µg/m ³)	Same as Primary Standard
	8 Hour	-	0.08 ppm ⁶	-
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	9.0 ppm (10 mg/m ³)	-
	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	-
Nitrogen Dioxide (NO ₂)	Annual Average	-	0.053 ppm (100 µg/m ³)	Same as Primary Standard
	1 Hour	0.25 ppm (470 µg/m ³)	-	-
Sulfur Dioxide (SO ₂)	Annual Average	-	80 µg/m ³ (0.03 ppm)	-
	24 Hour	0.04 ppm (105 µg/m ³)	365 µg/m ³ (0.14 ppm)	-
	3 Hour	-	-	1300 µg/m ³ (0.5 ppm)
	1 Hour	0.25 ppm (655 µg/m ³)	-	-
Suspended Particulate Matter (PM ₁₀)	Annual Geometric Mean	30 µg/m ³	-	-
	24 Hour	50 µg/m ³	150 µg/m ³	-
	Annual Arithmetic Mean	-	50 µg/m ³	-
Fine Particulate Matter (PM _{2.5}) ⁶	24 Hour	-	65 µg/m ³	-
	Annual Arithmetic Mean	-	15 µg/m ³	-
Sulfates (SO ₄)	24 Hour	25 µg/m ³	No Federal Standards	No Federal Standards
Lead (Pb)	30 Day Average	1.5 µg/m ³	-	-
	Calendar Quarter	-	1.5 µg/m ³	Same as Primary Standard
Hydrogen Sulfide (HS)	1 Hour	0.03 ppm (42 µg/m ³)	No Federal Standards	No Federal Standards
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 µg/m ³)	No Federal Standards	No Federal Standards
Visibility Reducing Particles	8 Hour (10 am-6 pm, Pacific Standard Time)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer– visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent. Method: ARB Method V (8/18/89).	No Federal Standards	No Federal Standards

Source: ARB Fact Sheet 39 (11/91); SCAQMD bulletin (8/97) and www.arb.ca.gov

1. California standards, other than ozone, carbon monoxide, sulfur dioxide (1 hour), nitrogen dioxide, PM₁₀, are values that are not to be equaled or exceeded. The ozone, carbon monoxide, sulfur dioxide (1 hour), nitrogen dioxide, and PM₁₀ standards are not to be exceeded.

2. National standards, other than ozone and those based on annual averages or annual geometric means, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above standard is equal to or less than one.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. All measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar). PPM in this table refers to parts per million by volume or micromoles of pollutant per mole of gas.

4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. Each state must attain the primary standards within a specified number of years after that state's implementation plan is approved by EPA.

5. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after the implementation plan is approved by EPA.

6. New federal 8-hour ozone and fine particulate matter standards were promulgated by EPA on July 18, 1997. The federal 1-hour ozone standard continues to apply in areas that violated the standard. Contact EPA for further clarification and current federal policies.

ISDRA is located in Imperial County, which is in the Salton Sea Air Basin (SSAB). The climate of Imperial County exhibits climatological characteristics typical of a desert: low annual precipitation, very hot summers, mild winters, high evaporation rates, and strong inversions. One of the main determinants of climatology is a semi permanent high-pressure area (the Pacific High) in the eastern Pacific Ocean. In the summer, this pressure center is located well to the north, causing storm tracks to be directed north of California. This high pressure cell maintains clear skies for much of the year. When the Pacific High moves southward during the winter, weakened low-pressure storms and the orographic barrier brings little rainfall. The combination of subsiding air, protective mountains, and distance from the ocean severely limits precipitation. In Imperial County, the precipitation level is very low, averaging 2.40 inches annually (NOAA, 2001). A summary of the monthly temperatures and precipitation are shown in Table 3.12-2. The mean temperature is 73.1°F, and the mean maximum and mean minimum temperatures are 87.7° F and 58.5° F, respectively (NOAA, 2001).

The flat terrain of Imperial Valley and the strong temperature differentials created by intense solar heating produce moderate winds and deep thermal convection. The Imperial Valley region occasionally experiences periods of high winds. Predominant wind directions are westerly and west-southwesterly during all four seasons, and average annual daily wind speed is 4.1 miles per hour (CARB, 1999).

A common atmospheric condition known as a temperature inversion affects air quality in the ISDRA. During an inversion, air temperatures become warmer with increasing height rather than cooler. The presence of the Pacific high-pressure cell can cause the air mass aloft to sink. As the air descends, compressional heating warms it to a temperature higher than the air below. This highly stable atmospheric condition is called a subsidence inversion. The boundary between the layers of air acts as a temperature inversion that traps pollutants below it. The inversion layer can persist for 1 or more days, causing air stagnation and buildup of pollutants. Highest or worst-case ozone levels are often associated with the presence of this type of inversion. Subsidence inversions are common from November through June, but appear to be relatively absent July through October.

Table 3.12-2 Average Monthly Temperatures and Precipitation for Imperial, CA, 1971-2000

Month	Imperial County Airport		
	Mean Daily Temperatures		Mean Monthly Precipitation (inches)
	Maximum (°F)	Minimum (°F)	
January	69	42	0.42
February	74	46	0.24
March	78	50	0.22
April	85	55	0.11
May	93	62	0.01
June	102	69	0.00
July	107	78	0.10
August	105	77	0.31
September	101	72	0.26
October	91	61	0.21
November	78	49	0.23
December	70	42	0.29
Absolute extreme temperatures	119	23	2.40 (total)

Reference: Imperial County, 2001b.

Health Effects of Criteria Air Pollutants

Air pollutants are recognized to have a variety of health effects on humans. Research by the CARB shows that exposure to high concentrations of air pollutants can trigger respiratory diseases such as asthma, bronchitis, and other respiratory ailments and cardiovascular diseases. A healthy person exposed to high concentrations of air pollutants may become nauseated or dizzy, may develop a headache or cough, or may experience eye irritation or a burning sensation or both in the chest. Ozone is a powerful irritant that attacks the respiratory system, leading to the damage of lung tissue. Inhaled particulate matter, nitrogen dioxide, and sulfur dioxide can directly irritate the respiratory tract, constrict airways, and interfere with the mucous lining of the airways. When it is absorbed into the bloodstream, carbon monoxide can endanger hemoglobin, the oxygen-carrying protein in blood, by reducing the amount of oxygen that reaches the heart, brain, and other body tissues. When air pollutant levels are high (a common occurrence in Southern California), children, elderly people, and people with respiratory problems are advised to remain indoors. Outdoor exercise also is discouraged because strenuous activity may cause shortness of breath and chest pains. A brief discussion of the criteria pollutants and their effects on human health and the environment is provided in Table 3.12-3.

Table 3.12-3 Criteria Air Pollutants and Their Effects on Human Health and the Environment

Physical Characteristics	Health Effects	Environmental Effects
CO is a colorless and odorless and at high levels is a poisonous gas. It is a component of motor vehicle exhaust. Peak CO concentrations typically occur during the colder months of the year and nighttime inversion conditions.	Exposure to CO reduces oxygen delivery to the body's organs and tissues. Elevated levels are dangerous to those who suffer from cardiovascular disease. CO can be poisonous, can cause visual impairment, reduce work capacity and manual dexterity, and inhibit learning ability.	None.
Ground-level ozone (the primary constituent of smog) is not emitted directly into the air but is formed by the reaction of volatile organic hydrocarbons (VOCs) and nitrogen oxides (NOx) in the presence of heat and sunlight.	Exposure to ambient ozone has been linked to increased hospital admissions and emergency room visits for respiratory causes, including respiratory infection, asthma, significant decreases in lung function, chest pain, and cough.	Ozone also affects vegetation and ecosystems, leading to reductions in agricultural and commercial forest yields, reduced growth and survivability of tree seedlings, and increased plant susceptibility to disease, pests, and other environmental stresses (e.g., harsh weather).
NO ₂ is a reddish brown, highly reactive gas. The major sources of man-made NOx emissions are high-temperature combustion processes. Home heaters and gas stoves also produce substantial amounts of NO ₂ in indoor settings.	Exposures to NO ₂ may reduce airway and lung function, increase respiratory illnesses in children, and increase susceptibility to respiratory infection. Atmospheric transformation of NOx can lead to the formation of ozone and PM, both of which are associated with adverse health effects.	NO ₂ is a precursor of acid rain and is linked to a wide range of environmental effects, including changes in the composition and competition of some species of vegetation, visibility impairment, acidification of freshwater bodies, eutrophication of estuarine and coastal waters, and increases in levels of toxins harmful to fish and other aquatic life.
SO ₂ is formed when fuel containing sulfur (mainly, coal and oil) is burned, and during metal smelting and other industrial processes. The highest concentrations of	Exposure to SO ₂ can result in temporary breathing impairment, reduced lung function, wheezing, chest tightness, or shortness of breath, respiratory illness,	SO ₂ is a major precursor of acid rain, which is associated with the acidification of soils, lakes, and streams, accelerated corrosion of buildings and

SO ₂ occur in the vicinity of large industrial facilities.	alterations in the lungs' defenses, and aggravation of existing cardiovascular disease.	monuments, and reduced visibility.
PM consists of a mixture of airborne solid particles and liquid droplets that originate from both man-made and natural sources. Fine particles (PM _{2.5}) are generally emitted from fuel combustion sources. Coarse particles (PM ₁₀) are generally emitted from sources that cause wind-blown or entrained dust. SO _x , NO _x , and VOC also interact with compounds in the air to form PM.	Inhalable PM can accumulate in the respiratory system and is associated with numerous health effects, including the aggravation of respiratory conditions (asthma), increased hospital admissions and emergency room visits for heart and lung disease, increased respiratory symptoms, decreased lung function, and even premature death.	PM is the major cause of reduced visibility in many parts of the United States. Airborne particles also can cause damage to paints and building materials.
Pb emissions to the atmosphere were formerly dominated by automotive sources. As a result of the elimination of leaded gasoline, metals processing facilities are currently the primary source of Pb emissions. The highest air concentrations of Pb are found in the vicinity of smelters and battery manufacturers.	Exposure to Pb occurs mainly through inhalation and ingestion pathways. It accumulates in the blood, bones, and soft tissues. Pb can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to Pb may cause neurological impairments, such as seizures, mental retardation, behavioral disorders, damage to the nervous systems of fetuses and young children, and may be a factor in high blood pressure and subsequent heart disease.	Lead can also be deposited on the leaves of plants, presenting a hazard to grazing animals.

Toxic Air Contaminants

The federal and state laws and regulations also define a group of pollutants called “hazardous air pollutants,” “toxic air contaminants,” or “air toxics.” These pollutants are regulated by the National Emissions Standards for Hazardous Air Pollutants (NESHAPS) section of the federal Clean Air Act; various state laws and regulations; state air toxics acts (e.g., the AB 1807, AB 2588, and SB 1731 programs); and Imperial County Air Pollution Control District (APCD) Regulations XI and XII. In urban areas, toxic air contaminants are a concern because of the concentration of people living close to large sources of emissions. The combination of toxic emissions from vehicles, industry, and multiple area sources creates an unhealthy mix that varies based on geography, industry, population, and other factors. Exposure to toxic air pollutants may cause or contribute to cancer, birth defects, genetic damage, and other adverse health effects.

In Imperial County, the Imperial County APCD is the agency responsible for protecting public health and welfare through the administration of federal and state air quality laws, regulations, and policies. Included in the tasks for Imperial County APCD are the monitoring of air pollution, the preparation of the State Implementation Plan (SIP) for Imperial County, and the promulgation of Rules and Regulations. The SIP included strategies and tactics to be used to attain the federal O₃ standard in Imperial County. The elements are taken from the Air Quality Attainment Plan, the APCD plan for attaining the state O₃ standard, which is more stringent than the federal standard (Imperial County APCD, 1991). The Rules and Regulations include procedures and requirements to control the emission of pollutants and to prevent adverse impacts.

Federal Clean Air Act Conformity

The CAA Amendments of 1977 (42 United States Code [USC] 7401, et seq.) state that the federal government is prohibited from engaging in, supporting, providing financial assistance for, licensing, permitting, or approving any activity that does not conform to an applicable SIP. Federal actions related to transportation plans, programs, and projects developed, funded, or approved under 23 USC or the Federal Transit Act (49 USC 1601, et seq.) are covered under separate regulations for Transportation Conformity.

In the 1990 CAA Amendments, EPA included provisions requiring federal agencies to ensure that actions undertaken in non-attainment or attainment-maintenance areas are consistent with applicable SIPs. Imperial County APCD has adopted Rule 925, General Conformity. The process of determining whether or not a federal action is consistent with applicable SIPs is called “conformity.” The general conformity rules establish a process to demonstrate that federal actions would be consistent with applicable SIPs and would not cause or contribute to new violations of the NAAQS, increase the frequency or severity of existing violations of the NAAQS, or delay the timely attainment of the NAAQS. The emission thresholds that trigger requirements of the conformity rule are called *de minimis* levels.

A determination of conformity with the applicable SIP is required for each pollutant where the total direct and indirect emissions in a non-attainment or attainment-maintenance area caused by the action would exceed *de minimis* levels. The General Conformity *de minimis* thresholds are defined in 40 CFR 93.153(b) and in Rule 1501. In addition, the project proponent must demonstrate that the total direct and indirect emission increases associated with the action will not be regionally significant; that is, they will not represent 10 percent or more of an emission inventory or emissions budget of an area.

The General Conformity rules do not apply to federal actions in areas designated as non-attainment of the CAAQS only.

Compliance with Air Quality Standards

Under the 1977 Amendments to the CAA, those states with air quality that did not achieve the NAAQS were required to develop and maintain SIPs. These plans constitute a federally enforceable definition of the approach of the state (or “plan”) and schedule for the attainment of the NAAQS. Air quality management areas are designated as “attainment,” “non-attainment,” or “unclassified,” depending on whether or not they achieve the NAAQS and CAAQS. In addition, California can also designate areas as “transitional.” It is important to note that, because the NAAQS and CAAQS are different in many cases, it is possible for an area to be designated as attainment by EPA (meets the NAAQS) and “non-attainment” by the CARB (does not meet the CAAQS) for the same pollutant. Also, an area can be designated as attainment for one pollutant (e.g., NO₂) and non-attainment for others (O₃ and PM₁₀).

Areas that were designated as attainment in the past, but have since achieved the NAAQS, are further classified as “attainment-maintenance.” The maintenance classification remains in effect for 20 years from the date that the area is determined by EPA to meet the NAAQS. There are numerous classifications of the non-attainment designation, depending on the severity of non-attainment. For example, the O₃-nonattainment designation has seven subclasses: transitional, marginal, moderate, serious, severe-15, severe-17, and extreme. Areas that lack monitoring data are designated as unclassified areas and treated as attainment areas for regulatory purposes.

The SSAB, which coincides geographically with the desert region of Imperial and Riverside Counties, currently meets the federal and state standards for all pollutants except O₃ and PM₁₀. The SSAB is currently classified as a “moderate” PM₁₀-nonattainment area and transitional non-attainment area for O₃. ISDRA is located within an attainment area for the federal and state CO, NO₂, SO₂, and Pb standards. The City of Calexico, located at the California/ Mexico International border, is in a non-attainment area for CO.

CARB monitors ambient air quality at approximately 250 air monitoring stations across the state. Air quality monitoring stations usually measure pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of “ground-level” concentrations. Factors affecting ground-level pollutant concentrations include the rate at which pollutants are emitted to the atmosphere, the height from which they are released, the

physical combination of emissions from various sources, the formation of secondary pollutants, the interaction of pollutants with topographic features, and meteorological conditions. Meteorological parameters that affected pollutant dispersion the most are wind speed and direction, atmospheric stability, mixing height, and temperature.

Ambient criteria air pollutant concentration in the SSAB are measured at six air quality monitoring stations operated by Imperial County APCD and CARB. The nearest air quality monitoring station operating in the vicinity of the Plan Area is a monitoring station located at Calexico East, approximately 20 miles to the southwest of the Plan Area. The station monitors O₃, CO, NO₂, SO₂, PM₁₀, and Pb. Data for the years 1996 to 2000 are summarized in Table 3.12-4. Over the last 5 years, the federal and state standards for NO₂, SO₂, and Pb have not been exceeded at the Calexico East Station. For the last 3 years, the federal and state 24-hour and annual standards for PM₁₀ were exceeded every year. Ozone levels at the Calexico East Station exceeded federal and state standards in every year from 1996 to 2000. Please note that the monitoring data from the Calexico-East Monitoring station was invalidated by both CARB and U.S. EPA as of September 2001 due to its location near a road.

Sources of Regional and Local Pollution

The most significant sources of O₃, NO₂, CO, and PM₁₀ in SSAB are automobiles and OHVs. The greatest source (87 percent) of PM₁₀ is road dust. Ozone is formed by the reaction of ROG and NO_x, which are largely combustion products from gas and diesel engines. Ozone is a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production. In Imperial County, 68 percent of the 310 tons per day of ROG emitted come from mobile sources (i.e., automobiles, trucks, marine vessels, aircraft, and heavy equipment). For NO_x, 88 percent of the 240 tons emitted daily are from mobile sources. Some ozone levels in excess of the federal and state standards can be traced to emissions of ozone precursors transported by wind from the South Coast Air Basin and from Mexico. Computer modeling of smog formation has shown that a reduction of approximately 25 percent each of NO_x and ROG would allow the SSAB to meet the federal O₃ standard on days when there is no substantial transport of pollution from the South Coast Air Basin or other air shed (District, 1999).

High concentrations of PM₁₀ in many areas in Imperial County result from wind action. The wind picks up particles from disturbed and undisturbed surfaces, recreational travel on paved and unpaved roadways, construction and demolition activities, and farming operations such as crop burning. These particles can remain suspended in the air for long periods and can travel a great distance. The principal health effect of airborne particulate matter is on the respiratory system.

Table 3.12-4 Ambient Air Quality Summary, Calexico – East Monitoring Station

—Note data has been officially invalidated as this location may receive impacts due to its proximity to the road.

Pollutant	Averaging Time	California Air Quality Standards	Federal Primary Standards	Maximum Concentrations ^(a)					Number of Days Exceeding Federal Standard ^(b)					Number of Days Exceeding State Standard ^(b)				
				1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000
Oxidants (Ozone)	1 hr	0.09 ppm	0.12 ppm	0.162	0.121	0.236	0.156	0.108	3	0	1	3	0	22	6	27	13	7
	8 hrs (c)	N/A	0.08 ppm	0.117	0.092	0.101	0.110	0.079	12	2	13	5	0	N/A	N/A	N/A	N/A	N/A
Carbon Monoxide	1 hr	20 ppm	35 ppm	22.0	21.0	18.4	14.0	17.6	0	0	0	0	0	1	1	0	0	0
	8 hrs	9 ppm	9 ppm	8.74	16.29	13.00	9.37	11.30	0	2	3	0	1	0	4	3	1	1
Nitrogen Dioxide	1 hr	0.25 ppm	N/A	0.072	0.091	0.105	0.110	0.124	N/A	N/A	N/A	N/A	N/A	0	0	0	0	0
	Annual	N/A	0.053 ppm	0.007	0.011	0.011	0.013	0.012	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
Sulfur Dioxide	1 hr	0.25 ppm	N/A	0.036	0.035	0.026	NM	NM	N/A	N/A	N/A	N/A	N/A	0	0	0	N/A	N/A
	24 hrs	0.05 ppm	0.14 ppm	0.010	0.015	0.009	NM	NM	0	0	0	N/A	N/A	0	0	0	N/A	N/A
	Annual	N/A	0.03 ppm	0.001	0.002	0.003	NM	NM	0	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM ₁₀	24 hrs	50 µg/m ³	150 µg/m ³	NM	NM	568	1,342	1,613	N/A	N/A	10	20	32	N/A	N/A	44	51	57
	Annual	30 µg/m ³	50 µg/m ³	NM	NM	107.8	168.7	238.8	N/A	N/A	1	1	1	N/A	N/A	1	1	1
Lead	Quarterly Average	N/A	1.5 µg/m ³	0.05	0.03	0.03	0.02	0.02	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A

Source: AIR Data, U.S. EPA Office of Air Quality Planning and Standards: Imperial County, CA 1996 - 2000. EPA website: <http://www.epa.gov/air/data>

Notes:

(a) Concentration units for ozone, carbon monoxide, nitrogen dioxide, and sulfur dioxide are in parts per million (ppm). Concentration units for PM₁₀ and lead are in micrograms per cubic meter (µg/m³).

For annual standards, a value of 1 indicates that the standard has been exceeded.

(c) The number of days above the 8-hour ozone standard is not the number of violations of the federal standard for the year. The number of days is presented for display purposes until the EPA completes the 8-hour ozone monitoring evaluation program.

NM = Not Monitored.

N/A = Not applicable.

Emissions sources associated with the existing use of ISDRA consist of combustion emissions from OHVs; small internal-combustion generator engines; recreational vehicles and on-road motor vehicles (commuting to, delivery at, traveling inside, and departing from the site); and fugitive dust emissions entrained from vehicles traveling over paved and unpaved surface. The principal sources of criteria pollutant emissions are automobiles and recreational vehicles.

The South Coast Air Quality Management District (SCAQMD) recently released a draft report, referred to as the *Multiple Air Toxics Exposure Study* (SCAQMD, 1999), discussing the exposure risk to toxic air contaminants in Southern California. The report stated that about 70 percent of all estimated human health risk to toxic air contaminants is attributed to diesel exhaust (particulate emissions); about 20 percent to other toxic compounds associated with mobile sources such as benzene and 1,3-butadiene; and about 10 percent to stationary sources. Existing emitters of toxic air pollutants include automobiles, trucks, recreational vehicles, portable fuel storage tanks, and OHV rental stations.

3.13 Hazardous Materials

Introduction

This section evaluates the storage and use of hazardous materials and the disposal of non-hazardous and hazardous waste within the ISDRA. In addition, a discussion of applicable environmental regulations and the results from a search of applicable federal and State of California environmental databases is provided to provide a better understanding of the hazardous materials used and disposed of near the ISDRA. Existing effects to human health and the environment are discussed to provide a baseline from which the proposed project alternatives can be analyzed.

Current and Past Uses of Adjoining Property

As described in Section 3.5 (Land Use and Ownership), land uses proximate or adjacent to the ISDRA Planning Area include a number of non-recreation applications. These land uses include Bureau of Reclamation-withdrawn lands, military target areas, sand and gravel sales activities, geothermal leases, oil and gas leases, mining, and utility transportation rights-of-way. Although certain of these land uses have an undetermined potential for minor hazardous material releases or localized contamination, they are not of the type that typically would be expected to pose a substantial hazardous material-related threat to the surrounding environment.

Environmental Regulations

The storage and use of hazardous materials is governed by federal, state, and local laws, ordinances, regulations, and standards (LORS). Applicable laws and regulations that address the use and storage of hazardous materials are discussed below along with applicable laws, ordinances, regulations, and standards that address the storage, transportation, and disposal of non-hazardous and hazardous waste.

CERCLA: Hazardous materials are governed under existing federal regulation through the Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund. This law provides broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. Title III of SARA, an amendment to CERCLA, requires states to establish a process for developing local chemical emergency preparedness programs and to receive and disseminate information on hazardous materials present at facilities in local communities.

RCRA: The federal statute that controls both non-hazardous and hazardous waste is Resource Conservation and Recovery Act (RCRA), 42 USC Sections 6901, et seq., and its implementing regulations found at 40 CFR 260, et seq. Subtitle D makes the regulation of non-hazardous waste the responsibility of the states; federal involvement is limited to establishing minimum criteria that prescribe the best practicable controls and monitoring requirements for solid waste disposal facilities. Subtitle C controls the generation, transportation, treatment, storage, and disposal of hazardous waste through a comprehensive

“cradle to grave” system of hazardous waste management techniques and requirements. It applies to all states and to all generators of hazardous waste (above certain levels of waste produced). EPA is responsible for implementing the law. The State of California laws for managing hazardous wastes is in Title 22 of the California Code of Regulations (CCR).

Health and Safety Code Section 25500 (Waters Bill): California Health and Safety Code, Section 25500, et seq., and the regulations to the law in 19 CCR Section 2620, et seq. require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. The threshold quantities for hazardous materials are 55 gallons for liquids, 500 pounds for solids, and 200 cubic feet for compressed gases measured at standard temperature and pressure.

Health and Safety Code Section 25531 (La Follette Bill): California Health and Safety Code, Section 25531, et seq., regulates the registration and handling of acutely hazardous materials. Acutely hazardous materials are any chemicals designated as an extremely hazardous substance by EPA as part of its implementation of Superfund Amendments and Reauthorization Act (SARA) Title III.

Aboveground Petroleum Storage Act: California Health and Safety Code Sections 25270 to 25270.13 is intended to ensure compliance with the federal Clean Water Act. The law applies if a facility has an aboveground storage tank (AST) with a capacity greater than 660 gallons or a combined AST capacity greater than 1,320 gallons, and if there is a reasonable possibility that the tank(s) may discharge oil in “harmful quantities” into navigable waters or adjoining shore lands.

Safe Drinking Water and Toxics Enforcement Act (Proposition 65): This California law identifies chemicals that cause cancer and reproductive toxicity, informs the public, and prevents discharge of the chemicals into sources of drinking water. Lists of the chemicals of concern are published and updated periodically. The California Office of Environmental Health Hazard Assessment administers the Act.

Solid Waste: Nonhazardous solid waste is regulated by the California Integrated Waste Management Act (CIWMA) of 1989, found in Public Resources Code (PRC) Sections 40000, et seq. This law provides an integrated statewide system of solid waste management by coordinating state and local efforts in source reduction, recycling, and land disposal safety. Counties are required to submit Integrated Waste Management Plans to the state. This law directly affects Imperial County and the solid waste hauler and disposal company that will collect non-hazardous waste. It also affects BLM to the extent that hazardous wastes are not to be disposed with solid waste.

Non-hazardous solid and liquid waste generated within the ISDRA is placed into one of three dumpsters located within the Plan Area. A waste removal company removes the dumpsters. The quantity of this waste is currently unknown. Solid and liquid hazardous materials and petroleum products are not allowed to be placed in the dumpsters.

Imperial County Regulations: Local regulations relating to hazardous materials in Imperial County are managed by the environmental health agency of the county.

Environmental Database Results

A review of available environmental records was performed to determine and identify known hazards associated in the ISDRA planning area and adjacent properties. An electronic database report was obtained from Fidelity Information Services, prepared in accordance with the American Society for Testing and Materials practices, which include all reasonably ascertainable environmental records including state and federal sources. The list of records, including the approximate minimum search distances and the resulting number of sites found within the ASTM search distance, measured from the perimeter of the Plan Area, are shown in Table 3.13-1. Descriptions of the databases searched below are provided in the following paragraphs. No sites of sites of environmental significance were identified.

Table 3.13-1 Site Distribution Summary – Imperial Hills Sand Dunes Recreation Area

Agency/Database – Type of Records	Within ½ mile	½ to ¾ mile	¾ to 1 mile	1 to 1½ mile
A) Databases searched to 1 mile				
EPA – NPL. National Priority List.	0	0	0	0
EPA – CORRACTS. (RCRA Corrective Action [w/o TSD]).	0	0	0	0
State – SPL. State equivalent priority list.	0	0	0	0
B) Databases searched to ½-mile				
EPA – RCRA TSD. RCRA permitted treatment, storage, disposal facilities.	0	0	0	-
State – SCL. State equivalent CERCLIS list.	0	0	0	-
EPA – CERCLIS/NFRP. Sites currently or formerly under review by EPA.	0	0	0	-
STATE REG CO – LUST. Leaking Underground Storage Tanks.	0	0	0	-
STATE/REG/CO – SWLF. Permitted as SWLF, incinerators, or transfer stations.	0	0	0	-
STATE – DEED RSTR. Sites with deed restrictions.	0	0	0	-
STATE – CORTESE. State index of properties with hazardous waste.	0	0	0	-
STATE – TOXIC PITS. Toxic Pits cleanup facilities.	0	0	0	-
STATE – FINDS – Facility Index System.	2	0	0	-
USGS/STATE – WATER WELLS. Federal and State Drinking Water Sources.	4	0	0	-
US EPA TRIS – Toxic Release Inventory Database.	0	0	0	-
C) Databases searched to ¼-mile:				
State – UST. Registered underground storage tanks.	0	0	-	-
State – AST. Registered aboveground storage tanks.	1	0	-	-
D) Databases searched to ¼-mile:				
EPA – GNRTR. RCRA registered small or large generators of hazardous waste.	2	-	-	-
EPA - RCRA Violations – RCRA violations/enforcement actions.	0	-	-	-
STATE – SPILLS. State spills list.	2	-	-	-
Total Sites	10	0	0	0

The following is a brief summary of each database searched that resulted in known sites within or near the ISDRA planning area. The sites are plotted in Figure 3.13-1.

[View Figure 3.13-1](#)

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Facility Index System (FINDS) – The FINDS database is an inventory of all facilities that are regulated or tracked by EPA. These facilities are assigned an identification number that serves as a cross-reference for other databases in the EPA program system. A review of the database results indicates two FINDS sites were identified within the survey area. These sites are as follows:

Santa Fe Pacific Minerals, Mesquite Mine. The site is located along SR-78 in the eastern portion of the Plan Area.

Arid Operations, Inc. The site is located along SR-78 in the eastern portion of the Plan Area.

The report also includes a category of “unmapped” sites. Sites are included in the unmapped category when the database information is not accurate enough to positively identify the site locations. The unmapped facilities are noted as:

United States Department of Interior Laguna Field Office U.S. Government, RTE 1 Box 201, Winterhaven, CA 92283

Glamis Radio Repeater, Black Mountain, Glamis, CA 92248

United States Geological Survey Wells /WATER WELLS – The Groundwater Site Inventory (GWSI) database is maintained by the United States Geological Survey (USGS). The database contains information for over 1 million wells and other sources of groundwater that the USGS has studied, used, or documented during research. A review of the database results indicates four USGS WATER WELLS were identified within the survey area. These WATER WELLS are used by the USGS for research purposes, and are located in the northern, eastern, and southern portions of the planning area.

State-of-California AST – The database maintains a list of aboveground storage tanks. A review of the database results indicates one state AST site was identified within the survey area. The site is as follows:

Newmont Gold Company. This site is located along SR-78 in the eastern portion of the Plan Area.

GNRTR – The database maintains a list of RCRA-registered small or large generators of hazardous waste. A review of the database results indicates two GNRTR sites were identified within the survey area. The sites are as follows:

Santa Fe Pacific Minerals. The site is a registered small quantity generator and is located along SR-78 in the eastern portion of the Plan Area.

Arid Operations, Inc. The site is a registered small quantity generator and is located along SR-78 in the eastern portion of the Plan Area.

SPILLS – The database maintains a list of spills from the Emergency Response Notification System (ERNS). The ERNS is a national computer database system that is used to store information on the sudden or accidental or both release of hazardous substances, including petroleum, into the environment. The ERNS contains preliminary information on specific releases, including the spill location, the substance released, and the responsible party. A review of the database results indicates two ERNS sites were identified within the survey area.

On July 3, 1991, 50 gallons of sodium cyanide solution were spilled at a site located along SR-78 in the eastern portion of the planning area. The origin of the spill was unknown, and no waterway was affected by the spill. Based on the report provided by Fidelity Information Services, no further monitoring or remedial action has been required. Therefore, this site has a low potential to affect existing conditions in the ISDRA Planning Area.

On June 26, 2000, 9,900 pounds of hydrogen cyanide emissions were released to the atmosphere at a site located along SR-78 in the eastern portion of the planning area. No other media was affected by the release. The origin of the release was not given. Due to the time that has elapsed since the release, the site has a low potential to affect existing conditions at the ISDRA. Based on the EDR provided by Fidelity Information Services, no further monitoring or remedial action has been required. Therefore, this site has a low potential to affect existing conditions in the ISDRA planning area.

3.14 Geology, Energy, and Mineral Resources

This section establishes the existing geologic conditions, including general seismicity, as well as energy and mineral resources. The local and regional geologic setting of the Algodones Dunes Area was researched using previous environmental assessment reports, soil reports, federal geographic information system (GIS) database maps, and technical research papers on the California desert.

Soils and Geological Conditions

The soil and geologic conditions of the ISDRA planning area are summarized in this section, including a general description of the geologic setting earth materials and the geologic (dune) structure. The geologic study of the ISDRA planning area includes evaluation of surface soils.

General Description of Geologic Setting

The Imperial Sand Dunes (also known as the Algodones Sand Dunes) are the largest mass of sand dunes in California. This dune system extends for more than 40 miles along the eastern edge of the Imperial Valley agricultural region in a band averaging 5 miles in width. It is roughly bordered on the west by the Coachella Canal, which delivers Colorado River water to the fertile agricultural valley to the north. A major east-west route of the Union Pacific Railroad skirts the eastern edge.

The dune system is situated on a relatively flat plain that has an elevation of approximately 50 feet above sea level. On the west, the plain is called East Mesa (because it is east of Imperial Valley). On the east, the plain is called Pilot Knob Mesa.

The dunes reach heights of 300 feet above the plain, and include classic examples of several different types of dunes. The sand dunes are thought originally to have been beach sands of ancient Lake Cahuilla, which occupied the Imperial Valley at a time when the Colorado River emptied into it instead of the Gulf of California. Unlike some major dune systems that have formed next to a mountain range, the Imperial Dunes have formed here primarily as a result of opposing seasonal winds. Winter winds come from the northwest, but often reverse to the southeast in summer. The stronger winter winds are slowly pushing the dune system southeastward.

The east and west sides of the dunes system differ substantially in character. West side sands are composed of material that is generally heavier and coarser than the lighter, finer sands carried further east in the prevailing winds. The coarse sands form the largest, tallest dunes, located in the western two-thirds of the dune system. These constitute the “primary dunes.” The tallest dunes are found toward the center of the overall dune mass, in the eastern half of the primary dune area. East of the primary dunes are the “secondary dunes,” smaller dunes composed of finer sands and having more vegetation cover (BLM, 1987).

Geologic Structure

The ISDRA planning area includes a great variety of dune forms, but is dominated by prominent transverse ridges. Some consider the Algodones Dunes to be a chain of oversize barchans, whose horns join. Barchan dunes are crescent in shape, develop on a flat surface, with a moderate sand supply transported mostly by unidirectional winds. The dominant sand-driving winds in this area blow from the northwest to the southeast, parallel to the gross trend of the Algodones Dunes. Barchans can advance across the desert, horns first, at rates varying from a few inches to tens of feet per year, depending upon the size of the dune and the amount of erosion due to wind, water, and vehicles. The source of the dunes is most likely from the northwest, developed from a large plume of sand driven inshore from the beaches of ancient Lake Cahuilla, which once occupied the present location of the Salton Basin.

In the southwest part of the Algodones Dune area are several long (about 6 miles) examples of seif dunes. Seif dunes are formed when the sand-driving winds come from several directions, but within narrow limits, 15 to 20 degrees, and the barchan form becomes elongate and hook-shaped, forming the linear sand ridges or "seif" dunes, as cross winds come from wider and wider angles. These linear ridges rise approximately 30 feet or so above the dune mass and form distinct ridges that curve and fade into the main dune mass to the north.

Of all the California Dunes, the Algodones Dunes show the most evidence of age. They have a distinctive light brown color, much darker than younger pale gray or white sands of the Coachella Valley near Palm Springs toward the northwest. The darker color suggests that the Algodones Dunes have been around for a long time, probably dating back to the latter part of the Pleistocene, 10 to 20 thousand years ago, or longer (Norris Sand Dunes of the California Desert).

Heavy vehicle use in the Algodones Dunes has modified some of the smaller dune forms (Norris, Sand Dunes of California). One of the most interesting dune areas geologically is the southern portion of the ISDRA, on either side of I-8. It is in this area that the greatest array of dune forms occurs. Vehicle disturbances change the smallscale dune forms, such as ripples, sand shears, and dune crests. Concentrations of heavier coarse grained materials are apt to be displayed imperfectly as a result of vehicle disturbance unless strong winds have occurred just prior to observation of the dunes.

The Algodones Dunes have a scientific value and are used as a teaching and research area. The southern portion of the study area has the greatest array of geological features. North of I-8, the finest examples of seif dunes occur, as well as some interesting elongate sand ridges extending from the mega-barchans.

Sand and Soils

A soils report was written for Imperial County by the U.S. Department of Agriculture Soil Conservation Service (October 1981). The geographic limits of the soil report investigation ended along the western edge of the Algodones Dunes Area. No detailed soil information was found for most of the ISDRA planning area east of the western edge. Based on findings

from the soil report, the western edge of the study area is composed primarily of Rositas sands with lesser areas of Antho loamy fine sands/Holtville silty-clay loams.

The Rositas sands are distributed throughout the ISDRA. These sands range in properties from loamy fine sands, to fine sands, to medium sands. The larger-grained Rositas sands are mostly in the western, upwind section of the subject area with the finer sands located mostly on the eastern downwind side of the dunes area. Typically, the Rositas sands are stratified, with reddish yellow to light brown coloring. These sands are formed in alluvial or eolian deposits from distant sources. Typically, the surface layer of the Rositas soil is light brown, loamy, fine sand about 4 inches thick. The underlying material is pinkish and very pale brown sand to a depth of 60 inches and can have thin gravelly subsurface layers. In many places, there are soils that have a sandy profile and a few thin lenses of fine sandy loam, silt loam, or silty clay loam. Permeability is rapid, and available water capacity is low. Surface runoff is slow, and there is a high hazard of soil blowing and abrasion to young plants. The effective rooting depth is 60 inches or more.

The Antho loamy fine sands/Holtville silty-clay loams are found in smaller pocket areas, most of which lie south of SR-78 and just east of the Coachella Canal. These soils are deep and well drained and typically form in alluvial sediments of mixed sources. Surface textures are composed of fine sandy loam, silty loam sand, and silty-clay loam. Typically, the surface layer of this Antho/Holtville soil is reddish loamy fine sand about 13 inches thick. Underlying this is reddish yellow or pink fine sandy loam to a depth of 42 inches. Below this is stratified, contrasting material of finer or coarser texture. Permeability of the loamy sands is moderately rapid, and available water capacity is low to moderate. Permeability of the silty-clay loams is moderately slow, and available water capacity can be high. Surface runoff is slow, and the hazard of soil blowing for the sandy loam is high. The effective rooting depth is 60 inches or more. These soils have potential for irrigated farming with land leveling (USDOA, 1981).

Seismicity

Faults are fractures in the crust of the earth along which bedrock is displaced or offset as a result of pressures within the earth. An active fault is one where displacement has occurred within the last 11,000 years or so, which is a period in time that is referred to as the Holocene Epoch.

Earthquakes are vibrations of the earth caused by sudden movement of the bedrock on either side of an active fault. The vibration of the earth results when bedrock on either side of the fault breaks loose from its original position and then snaps into a new position. In the process of rebounding, vibrations called seismic waves are generated. The primary effect of earthquakes is the violent ground motion accompanying movement along a fault. Secondary effects include ground rupture; landslides; tsunamis (i.e., tidal waves); lurching; regional or local subsidence of the land; and liquefaction. Liquefaction is a geologic process in which soil that is saturated loses its strength or stiffness as a result of increased pore pressures resulting from ground shaking during earthquakes. Liquefaction is most likely to occur in recent geologic deposits, especially sandy soils that have a high groundwater table.

The planning area is located to the east of the zone of major historic recorded seismic activity in Southern California. The western portion of Southern California is more seismically active because of the basic differences in the geological environment between the western and eastern portions of Southern California. In addition, the number and length of the active faults decrease from west to east within the western portion of Southern California.

The Imperial Valley is at the southern end of the San Andreas fault system, probably the most studied and best known fault system in the United States. The San Andreas system transects the northeastern margin of the Imperial Valley approximately 60 miles northwest of the Plan Area. Other major Holocene Epoch faults within the region include several faults that parallel, or are “en echelon” to, the southern section of the San Andreas fault. Most notably, these faults are the reported East Mesa fault, the East Highline Canal lineament, the Imperial-Brawley Seismic Zone, the Superstition Hills fault (San Jacinto fault Zone), and the Elsinore fault. Some geologic references for the area also indicate the possible existence of a postulated fault (Sand Hills fault) beneath the Algodones Sand Dunes, which may represent the inactive eastern boundary of the Salton Trough spreading center. No evidence has been documented to indicate that the Sand Hills fault has been active in Holocene time. The active faults currently associated with the eastern boundary of the Salton Trough are now coincident with the East Mesa fault and possibly the East Highline Lineament (Imperial Environmental Impact Statement, 1997).

Energy Resources

As of 1987, several oil and gas leases had been issued, mainly in the class L (limited use) area of the central dunes, the Glamis/Gecko Open Area, and in the North Algodones Dunes Wilderness. Leasing took place within the WSA in 1981 and 1982, prior to a moratorium on WSA leasing. Development of oil and gas resources is low due to geologic conditions.

Two Known Geothermal Resource Areas (KGRAs) underlie the recreation area, the Glamis KGRA and the Dunes KGRA. Figure 3.14-1 shows these areas. The geothermal potential is considered fair for high temperature electrical power generation and excellent for low temperature applications. The Glamis KGRA occupies a corridor along SR-78, extending up to 2 miles north and 3 miles south of the highway. The northern portion of the “Glamis” KGRA extends into the North Algodones Dunes Wilderness. The “Dunes” KGRA occupies 16 sections of East Mesa and adjacent dunes in the southern portion of the Plan Area.

Mineral Resources

The principal mineral resources are sand and gravel. The blow sand of the main dune system is occasionally used for fill material. Alluvial sand and gravel deposits east of Glamis are extracted for road base material. Permits for the extraction of sand and gravel have been proposed for Class I land, not WSAs or Class L land. All sand and gravel sales activity is found on the Glamis-Boardmanville Class M lands. Mining claims are also located in the Class M lands. No mineral extraction has occurred in these areas, and potential for practical extraction appears to be low (BLM, 1987; CDC, 1980).

[View Figure 3.14-1](#)

Known Geothermal Areas - 68Kb

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CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

The environmental impacts associated with implementation of the project alternatives are described in the following sections. Impacts include both direct impacts and indirect impacts. A direct impact is caused by the action and occurs at the same time and place. Indirect impacts result from one or more of the direct impacts of the action, but may occur later in time or be further removed from the Plan Area. In addition, all impacts are considered adverse unless noted as beneficial. Where applicable, mitigation measures are provided to avoid, reduce, or compensate for project impacts.

The following sections detail the anticipated impacts associated with each of the project alternatives, based on 14 distinct, but interrelated, resource categories. These include:

- Recreation (Section 4.1)
- Biological Resources (Section 4.2)
- Law Enforcement and Public Safety (Section 4.3)
- Social (Section 4.4)
- Economics (Section 4.5)
- Land Use and Land Ownership (Section 4.6)
- Visual Resources (Section 4.7)
- Water Resources (Section 4.8)
- Cultural Resources (Section 4.9)
- Transportation and Traffic (Section 4.10)
- Noise (Section 4.11)
- Air Quality (Section 4.12)
- Hazardous Materials (Section 4.13)
- Geology, Energy, and Mineral Resources (Section 4.14)

4.1 Recreation Resources

Introduction

This section assesses impacts to recreational resources as a result of implementing the alternatives described in Chapter 2 of this EIS. Alternative 1 (No Action) represents the management actions in the 1987 RAMP. The action alternatives (Alternatives 2, 3, and 4) provide different levels of developed recreation settings and improvements in accordance with designated ROS classes for each alternative.

Direct and Indirect Effects

The EIS alternatives are designed to provide varying mixes of recreation settings, varying types and amounts of other resource emphases, and varying recreation management standards and philosophies. This variation results in the alternatives having different effects on:

- The amount and quality of recreational opportunity available;
- Anticipated and potential recreation visitation levels; and
- Current management problems identified by visitors and managers that degrade recreation experiences.

Effects on Recreation Activities

Alternatives would affect recreation opportunities primarily through the recreation setting each alternative provides and the types and amounts of other resource emphases each prescribes (see table below). Recreation settings, as identified in the recreation opportunity spectrum system of classification, set standards for the type and amount of access and facilities provided, recreation activities (experiences) provided, and management control and information provided.

Effects of the action alternatives on various recreation opportunities within the planning area.

Management Area			Alternatives								
			#2 Recreation and Resource Protection			#3 Natural/Cultural			#4 Recreation		
Name	Acreage	%	OHV designation	MUC designation	ROS Class	OHV designation	MUC designation	ROS Class	OHV designation	MUC designation	ROS Class
Mammoth Wash	8,105	5%	Open	L	SPM	Closed	C	SPNM	open	M	RN
N. Algodones Dunes Wilderness	26,202	16%	Closed	C	SPNM	Closed	C	SPNM	closed	C	SPNM
Gecko	21,225	13%	Open	I	R	Open	M	RN	open	I	U
Glamis	24,041	15%	Open	M	RN	Open	L	SPM	open	I	R
Adaptive Management Area	33,289	21%	Limited	L	SPM	Closed	C	SPNM	limited	L	RN
Ogilby	21,710	14%	Open	M	RN	Open	L	SPM	open	M	R
Dune Buggy Flats	16,658	10%	Open	M	RN	Open	L	SPM	open	I	R
Buttercup	7,842	5%	Open	I	R	Open	M	RN	open	I	U

Total Acres 159,072

Note: The 1987 RAMP did not designate management areas; therefore, it was not comparable in this table.

I – Intensive

M – Moderate

L - Limited

C – Controlled

U – Urban

R – Rural

RN – Roaded Natural

SPM – Semi-primitive Motorized

SPNM – Semi-primitive Non-motorized

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Mix of Recreation Settings

The mix of recreation settings would affect the types and amounts of specific recreation opportunities and experiences available at the ISDRA. Alternative 4 would provide higher levels of rural and urban settings and would increase opportunities for activities such as overnight camping, OHV recreation, socializing, scenery from a developed site, and visiting interpretive sites. There would be more opportunity to experience the ISDRA in a low risk way with the security of designed, managed facilities, and many other visitors nearby.

Alternative 3 would provide higher levels of semi-primitive motorized and semi-primitive non-motorized settings in the ISDRA. Semi-primitive non-motorized settings would include more opportunity for activities such as hiking, and horseback riding. While semi-primitive motorized setting would provide more opportunity for OHV recreation with very little contact with other visitors. Both settings would provide a relatively remote and minimally disturbed natural setting with few to moderate numbers of visitors and few management controls. Semi-primitive settings allow the public to experience the ISDRA in a high risk, self-reliant manner.

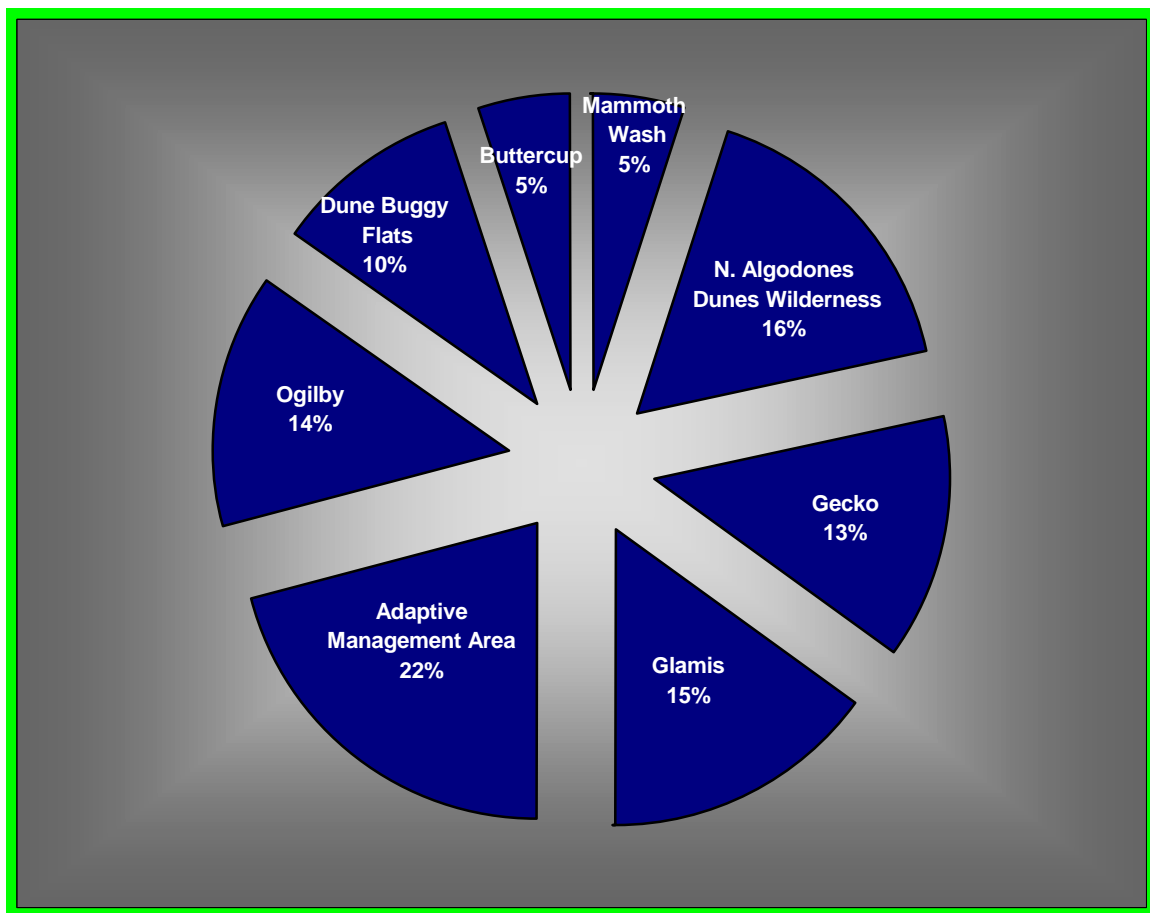


Chart 4.1 - Management area percentage within the planning area

Alternative 2 (preferred alternative) would provide a mixture of Alternatives 3 and 4. This alternative would increase developed camping, limited OHV areas, and interpretive sites. It would also decrease OHV open areas and dispersed camping. It would provide both high and low risk experiences throughout the recreation area. This alternative would sustain a wide range of recreation opportunities throughout the ISDRA while meeting conservation goals.

Assumptions and Assessment Guidelines

The management actions that would occur under all action alternatives (e.g., new and improved facilities, improved public safety measures, and public information encouraging off-peak visits) are expected to improve the overall quality of experience at ISDRA. Management actions in all action alternatives are also expected to decrease the amount of open OHV recreation areas due to the establishment of an Adaptive Management Area.

The estimated range of future visits to the ISDRA for the implementation period of the proposed revised RAMP (i.e., approximately 10 years) under each alternative is provided in Table 4.1-1. These estimates are based upon visitor use data from the 1999/2000 visitation season. As noted in Section 3.1, the 1999/2000 season represents the baseline condition for visitor attendance because it is consistent with the management of ISDRA under the 1987 RAMP (i.e., prior to implementation of the temporary closures).

Since 1985, the number of visits at the ISDRA has approximately tripled (BLM, 2001q). (A “visit” is defined in the footnotes of Table 4.1-1.) This increase in visitor use represents an annual growth rate of approximately 7.5 percent since 1985. In comparison, the State of California Department of Parks and Recreation has estimated growth in statewide OHV activity of approximately 3.5 percent annually (California Department of Parks and Recreation, 1997). These two percentages comprise the high and low ends of the range of projected increases in visitation at ISDRA under the No Action Alternative (Alternative 1), as shown in Table 4.1-1.

Under the action alternatives (2, 3, and 4), law enforcement is proposed to be increased from the No Action condition for the six major holiday weekends. This management action is expected to result in a decrease in visitation by visitors who engage in unlawful activities. This initial decrease in visitor use, however, would be offset by other management actions intended to improve the overall quality of experience at ISDRA (e.g., new and improved facilities, improved public safety measures, public information encouraging off-peak visits, etc.), that are expected to attract visitors seeking OHV recreational experiences consistent with legal activities. For the purposes of analysis in this EIS, the lower end of the projected visitor-use growth range under the action alternatives is assumed to be similar to the statewide average (i.e., 3.5 percent). For each of the action alternatives (Alternatives 2, 3, and 4), the high end of the projected visitor-use growth range limit would be comparable to the historical growth rate experienced since 1985; but the actual increase in visitor use would be constrained by the availability of camping facilities and management actions designed to maintain a recreation experience associated with a specific ROS class.

The high end of the growth range under Alternative 2 is assumed to be 5 percent (i.e., the approximate mid-point of the 7.5 percent growth rate experienced annually at ISDRA since 1985 and the state projection for growth in OHV use of 3.5 percent).

Under Alternative 3, revising the ROS classification of the Adaptive Management Area is expected to limit the growth of OHV-related visitor use because the change in classification would exclude motorized vehicle use. The upper growth limit under Alternative 3 is, therefore, assumed to average 4 percent annually.

Alternative 4 is expected to result in a higher growth in visitation than the other action alternatives because the change in ROS class under that alternative would allow for additional campgrounds in the Glamis Management Area. On this basis, the anticipated high end of the growth range under Alternative 4 is assumed to average 6 percent annually.

TABLE 4.1-1 VISITOR USE PROJECTIONS (2002-2003 TO 2012-2013)

	Baseline Visits (1999-2000 Season)	Estimated Visits ¹ (2002-2003 Season) ²	Projected Visits (2012-2013 Season) ³	
			Low Range	High Range
Alternative 1	867,753	1,005,000	1,418,000	2,071,000
Alternative 2	867,753	1,005,000	1,418,000	1,637,000
Alternative 3	867,753	1,005,000	1,418,000	1,488,000
Alternative 4	867,753	1,005,000	1,418,000	1,800,000

¹A “visit” occurs when one person visits BLM lands to engage in any recreation activity, whether for a few minutes, full day, or more.

²The estimate for the 2002-2003 season is based on an average 5 percent growth rate from the baseline season (1999-2000).

³This projection is the expected change in visitation between the 2002-2003 season and the 2012-2013 season. This represents the first season following implementation of a revised RAMP and 10 years later (i.e., the proposed period of implementation for a revised RAMP).

For this analysis of recreational resources, the assessment focuses on the ROS classifications as they pertain to the action alternatives. The proposed ROS classifications for the action alternatives (Alternatives 2, 3, and 4) are described in Chapter 2. For Alternative 1, the BLM has not assigned any ROS classifications because a ROS inventory of the lands within the ISDRA has not yet been conducted. The discussion of each action alternative focuses on the following:

- The change in ROS designation, when compared to the baseline condition
- The expected increase in visitation and the visitor supply of the eight management areas

For Alternative 1, the assessment focuses on continued implementation of the 1987 RAMP and baseline conditions (excluding the interim closures).

Alternative 1

This alternative would not affect the current status of the North Algodones Dunes Wilderness Area, which prohibits mechanized use within its boundaries, but allows non-mechanized recreation use. Under Alternative 1, no ROS classes are designated.

Although visitors would continue to congregate at high-use areas under Alternative 1, it is likely that there would be some change to existing visitor use patterns (i.e., the spatial distribution of recreation visits at ISDRA). As noted above in Table 4.1-1, annual visitation in 2002-2003 is expected to be approximately 1,005,000; by 2012-2013 annual visitation would grow to an estimated 1,418,000 to 2,071,000. This increase in visitation is likely to result in the dispersal of visitors, thereby increasing the concentration in areas that currently maintain a lower number of visitors. As a result, compatibility issues may arise between those users seeking a more solitary experience and those users dispersed into lower-use areas due to overcrowding. This is considered a potentially adverse impact of Alternative 1.

Increased visitation would present various management challenges for ISDRA staff, including those involving public safety. This issue is addressed further in Section 4.3 (Law Enforcement and Public Safety).

Implementation of this alternative would also provide for some recreation improvements, as outlined in the 1987 RAMP. These improvements include installation of signs; development and distribution of brochures; presentation of evening programs in the Gecko, Glamis, or Buttercup areas; development of a vehicle corridor along the Old Coachella Canal; establishment of Osborne Lookout as an interpretive site (and eventually to a day-use facility); various improvements at the camping areas; improvements to the Cahuilla Ranger Station; developed camping areas and access in the Mammoth Wash Open Area; and provisions for increasing visitor and staff safety at ISDRA. These improvements would provide a beneficial impact to visitors.

Alternative 2

ROS Designations

Implementation of Alternative 2 would result in the designation of individual ROS categories to each of the eight management areas in the Plan Area. Table 4.1-2 provides a breakdown of the acreage and a description of the type of recreation experience that characterizes each ROS class designation.

TABLE 4.1-2 ROS CLASS ACREAGE AND DESCRIPTION**ALTERNATIVE 2**

ROS Class & Management Area	Description	Designated Acreage
Rural Gecko Buttercup	Indicates that the area is characterized by a natural environment that has been modified substantially by development of structures, vegetative manipulation, or pastoral agricultural development. Resource modification and utilization practices may be used to enhance specific recreational activities and maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction among users is often moderate to high. Many facilities are designed for use by a large number of people, and facilities often are provided for special activities. Moderate user densities are present away from developed sites. Facilities for intensified motorized use and parking are available.	29,067
Roaded Natural Glamis Ogilby Dune Buggy	Indicates that the area is characterized by a predominantly natural appearing environment with moderate evidence of the sights and sounds of humans. Such evidence usually harmonizes with the natural environment. Interaction among users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities.	62,409
Semi-Primitive Motorized Mammoth Wash AMA	Indicates that the area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that there are minimum onsite controls, and restricted use of local primitive or collector roads with predominantly natural surfaces and trails suitable for OHVs is permitted.	41,394
Semi-Primitive Non-Motorized North Algodones Dunes Wilderness	Indicates that the area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Interaction among users is low, but there is often evidence of other users. The area is managed in such a way that minimum onsite controls; and restrictions may be present, but would be subtle. Motorized recreation use is not permitted, but local roads used for other resource management activities may be present on a limited basis.	26,202
Total		159,072

Under Alternative 2, management actions would be applied to ensure that the recreation experience at ISDRA was consistent with the ROS class designated to each of the nine management areas. Management actions to be applied under Alternative 2 in support of the ROS designations include facility development and actions to ensure that the visitor supply (discussed below) at ISDRA is not substantially exceeded. The anticipated results are the

conservation of unique recreation opportunities afforded by ISDRA, and natural and cultural resources. This is considered a beneficial impact.

Visitor Supply

The estimated visitor supply at ISDRA is provided in Table 4.1-3. The visitor supply is defined as the maximum number of visitors that could occur at ISDRA while maintaining the designated ROS class goals.

TABLE 4.1-3 VISITOR SUPPLY BY MANAGEMENT AREA

Area	DESIGNATED ROS CLASS	Visitor Supply^A
Gecko Management Area	Rural	28,199
Buttercup Management Area	Rural	19,165
Mammoth Wash Management Area	Semi-Primitive Motorized	2,829
Glamis Management Area	Roaded Natural	12,688
Ogilby Management Area	Roaded Natural	9,696
Dune Buggy Flats Management Area	Roaded Natural	7,793
North Algodones Dunes Management Area	Semi-Primitive Non-Motorized	74
Total	NA	80,444

^aThe visitor supply presented is based on the acreage available for camping, the number of available campsites, an average number of vehicles per camping party, and an average number of people per vehicle.

Historically, visitation during major holiday weekends has often exceeded 100,000 visits (BLM, 2001q). This level of visitation far exceeds the visitor supply at ISDRA, as defined above in Table 4.1-3. However, over the course of the recreation season at ISDRA (October 1 through May 31), the total annualized visitor supply is expected to be adequate.

Management actions can be expected to redistribute visits to weekends other than the major holiday weekends, this may represent an impact to recreation resources because it could alter the recreation experience at ISDRA. Impacts may occur if groups of friends and family cannot camp together due to visitation dispersion over time. Some members of the public may want to visit on non-holiday weekends and their friends and family may not have a choice as to when they can come. The maintenance of designated ROS classifications through management actions would provide a beneficial impact to recreation by preserving

the unique quality of experience provided at ISDRA (e.g., Semi-Primitive Motorized and roaded natural ROS classes). However, at the same time, it may have a negative sociological impact to the visitors who could be displaced or no longer acquire the historical experience provided in Alternative 1.

Other Management Actions

This alternative would include updating the kiosks at the Wildlife Viewing Area. This would provide a beneficial impact to the public who seek interpretive information on recreational, natural, and cultural resources.

Applying a dust palliative on the Wash Road has the potential to reduce the dust and, therefore, improve the quality of the recreational experience in that area.

This alternative would provide for the development of pit toilet facilities in Glamis Flats, The Washes, and Dune Buggy Flats areas. This would provide an amenity to visitors and is considered a beneficial impact.

The potential curfew at Oldsmobile Hill, Competition Hill, Competition Hill South Dunes, Test Hill, and Patton Valley at night would eliminate a recreational opportunity that is offered in the baseline condition and have a negative impact to recreation. There has been historical visitation in these areas since the 1950's and 1960's. Many people who visit the Dunes look forward to these areas as destination points and for legal social and OHV activities.

The potential alcohol ban could have a negative impact on the social experience of law abiding visitors although improve the overall safety of all visitors.

In the Buttercup Management Area, interpretive facilities and parking would be developed near Grays Well Road and a law enforcement/ranger station facility would be constructed. These facilities would provide an amenity to visitors, and would have a beneficial impact.

Vendors would be allowed to continue to vend in specific locations in the recreation area and short term and long-term areas would be established. This is considered to be beneficial for visitors.

The Adaptive Management Area (AMA) would be changed from open to limited OHV use and have a seasonal closure. Visitors who historically used this low use area will now have to obtain a permit in order to gain legal access into the AMA. This would have a negative impact on OHV recreation.

Stronger enforcement of riding (speeding) near concentrations of people could improve the camping experience through out the ISDRA.

The fee demo plan would be revised and fees could increase. This could have a negative impact on the recreational experience, and low-income families. Although, fees collected and used in the ISDRA could have a beneficial impact on recreation by providing more facilities and services. Adding fee-free weekends could mitigate a negative experience, and the increasing level of available funds will add to our ability to continue to support the recreational activities.

Alternative 3

ROS Designations

Implementation of Alternative 3 would result in the designation of individual ROS categories to each of the eight management areas in the Plan Area. Table 4.1-4 provides a breakdown of the acreage and a description of the type of recreation experience that characterizes each ROS class designation.

TABLE 4.1-4 ROS CLASS ACREAGE AND DESCRIPTION

ALTERNATIVE 3

ROS CLASS & Management Area	Description	Designated Acreage
Roaded Natural Gecko Buttercup	Indicates that the area is characterized by a predominantly natural-appearing environment with moderate evidence of the sights and sounds of humans. Such evidence usually harmonizes with the natural environment. Interaction among users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities.	29,067
Semi-Primitive Motorized Glamis Ogilby Dune Buggy	Indicates that the area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that there are minimum onsite controls, and restricted use of local primitive or collector roads with predominantly natural surfaces and trails suitable for motorbikes is permitted.	62,409
Semi-Primitive Non-Motorized Mammoth Wash North Algodones Dunes Wilderness AMA	Indicates that the area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Interaction among users is low, but there is often evidence of other users. The area is managed in such a way that minimum onsite controls and restrictions may be present, but would be subtle. Motorized recreation use is not permitted, but local roads used for other resource management activities may be present on a limited basis.	67,596
Total		159,072

Under Alternative 3, management actions would be applied to ensure that the recreation experience at ISDRA was consistent with the ROS class designated to each of the nine management areas. Compared to Alternative 2, Alternative 3 would provide an increased area available for semi-primitive recreation experiences, including semi-primitive non-

motorized, which would constitute more than half of the Imperial Sand Dunes Planning Area under this alternative, a decrease in roaded natural, and the elimination of the rural classification.

Management actions to be applied under Alternative 2 in support of the ROS designations include facility development and actions to ensure that the visitor supply (discussed below) at ISDRA is not substantially exceeded, and will apply in alternative 3. The anticipated result is the conservation of natural and cultural resources in ISDRA. The decrease in acreage available for off-highway vehicle recreation and available camping acreage is considered a substantial negative recreational impact.

Visitor Supply

The estimated visitor supply at ISDRA under this alternative would be lower than that available under Alternative 2. This is due to the increased acreage designated as semi-primitive, which is associated with a lower concentration of visitors. Please see Table 4.1.5

TABLE 4.1-5 VISITOR SUPPLY BY MANAGEMENT AREA

Area	DESIGNATED ROS CLASS	Visitor Supply ^A
Gecko Management Area	Roaded Natural	6,453
Buttercup Management Area	Roaded Natural	5,084
Mammoth Wash Management Area	Semi-Primitive Non-Motorized	23
Glamis Management Area	Semi-Primitive Motorized	3,806
Ogilby Management Area	Semi-Primitive Motorized	2,909
Dune Buggy Flats Management Area	Semi-Primitive Motorized	2,337
North Algodones Dunes Management Area	Semi-Primitive Non-Motorized	74
Total	NA	20,686

^aThe visitor supply presented is based on the acreage available for camping, the number of available campsites, an average number of vehicles per camping party, and an average number of people per vehicle.

Historically, visitation during major holiday weekends has often exceeded 100,000 visits (BLM, 2001q). Because the total area available for OHV use under Alternative 3 would be

less than half of that available under Alternative 2, the visitor supply is anticipated to be reduced proportionately. Assuming that the visitor supply under Alternative 3 is approximately 50 percent of that available under Alternative 2, the visitor supply would be exceeded on major holiday weekends. This represents an adverse impact to recreation resources.

The implementation of management actions designed to maintain the semi-primitive non-motorized ROS class at ISDRA would provide a benefit to the visitors not engaging in motorized vehicle activity.

Other Management Actions

Impacts related to other management actions (e.g., facility development, nighttime closures, etc.) would be similar to those discussed previously under Alternative 2.

Under this alternative, the current ranger station, Cahuilla Ranger Station, would be moved to Osborne Outlook. This alternative will close the existing camping area at Osborne Overlook and will negatively impact the OHV enthusiasts who have historically camped there. However, the beneficial effects to visitors to the area could offset this impact. This facility would provide a central location for emergency services during the visitation season. It would also serve as an interpretive facility for both motorized and non-motorized recreation visitors.

Alternative 4

ROS Designations

Implementation of Alternative 4 would result in the designation of individual ROS categories to each of the eight management areas in the Plan Area. The specific ROS designations and acreages associated with this alternative are depicted in Table 4.1-6.

TABLE 4.1-6 ROS CLASS ACREAGE AND DESCRIPTION**ALTERNATIVE 4**

ROS Class & Management Area	Description	Designated Acreage
Urban Gecko Buttercup	Indicates that the area is characterized by a substantially urbanized environment, although the background may have natural-appearing elements. Renewable resource modification and utilization practices are often used to enhance specific recreation activities. Vegetative cover is often exotic and manicured, and sights and sounds from humans are predominant onsite. Large numbers of users can be expected both onsite and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site.	29,067
Rural Glamis Ogilby Dune Buggy	Indicates that the area is characterized by a natural environment that has been modified substantially by development of structures, vegetative manipulation, or pastoral agricultural development. Resource modification and utilization practices may be used to enhance specific recreational activities and maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction among users is often moderate to high. Many facilities are designed for use by a large number of people, and facilities often are provided for special activities. Moderate user densities are present away from developed sites. Facilities for intensified motorized use and parking are available.	62,409
Roaded Natural Mammoth Wash AMA	Indicates that the area is characterized by a predominantly natural-appearing environment with moderate evidence of the sights and sounds of humans. Such evidence usually harmonizes with the natural environment. Interaction among users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident, but harmonize with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities.	41,394
Semi-Primitive Non-Motorized North Algodones Dunes Wilderness	Indicates that the area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Interaction among users is low, but there is often evidence of other users. The area is managed in such a way that minimum onsite controls and restrictions may be present, but would be subtle. Motorized recreation use is not permitted, but local roads used for other resource management activities may be present on a limited basis.	26,202
Total		159,072

Under Alternative 4, management actions would be applied to ensure that the recreation experience at ISDRA is consistent with the ROS class designated to each of the eight management areas. In contrast, visitation under the baseline condition would continue to grow unmanaged. Compared to Alternatives 2 and 3, this alternative would provide an increased area available for rural and urban recreation experiences. Relative to Alternative 2

and 3, Alternative 4 would provide less acreage designated to semi-primitive motorized recreational activity.

Management actions to be applied under Alternative 4 in support of the ROS designations include facility development and actions to ensure that the visitor supply (discussed below) at ISDRA is not substantially exceeded. The anticipated result is the conservation of recreation opportunities characterized by the urban, rural, roaded natural, semi-primitive motorized and semi-primitive non-motorized ROS classes. This alternative most closely meets the current and historical recreational activities and this is considered beneficial. Through the public scoping process, the BLM has documented that OHV enthusiasts want to keep the area the way it is managed under the 1987 RAMP, with increased enforcement and visitor services.

Visitor Supply

The estimated visitor supply at ISDRA under this alternative would be greater than that available under Alternatives 2 and 3. Please see Table 4.1-7. This is due to the increased acreage designated under urban, rural, and roaded natural.

TABLE 4.1-7 VISITOR SUPPLY BY MANAGEMENT AREA

Area	DESIGNATED ROS CLASS	Visitor Supply^A
Gecko Management Area	Urban	50,921
Buttercup Management Area	Urban	32,659
Mammoth Wash Management Area	Roaded Natural	9,431
Glamis Management Area	Rural	76,129
Ogilby Management Area	Rural	58,174
Dune Buggy Flats Management Area	Rural	46,759
North Algodones Dunes Management Area	Semi-Primitive Non-Motorized	74
Total	NA	274,147

^aThe visitor supply presented is based on the acreage available for camping, the number of available campsites, an average number of vehicles per camping party, and an average number of people per vehicle.

Historically, visitation during major holiday weekends has often exceeded 100,000 visits (BLM, 2001q). While the total area available for OHV use under Alternative 4 would be similar to Alternative 2, the increased intensity (i.e., concentration of OHV users) is expected to increase available visitor supply by at least 20 percent over Alternative 2. Even so, the visitor supply under Alternative 4 may be exceeded on major holiday weekends. The annual

supply is above the anticipated high range of future visits expected under Alternative 4 of approximately 1.8 million. Therefore, overall access at ISDRA could be maintained.

Other Management Actions

Impacts related to other management actions (e.g., facility development, nighttime closures, etc.) would be similar to those discussed previously under Alternative 2.

Other Resource Emphasis Areas Summary for all Alternatives

Land managed for other resource emphasis (i.e. natural and cultural resources) would also contribute to the spectrum of recreation settings and opportunities represented in the ISDRA. Generally, across all alternatives, lands allocated to other resource emphasis would favor types of recreation that involve fewer people and non-motorized activity. Areas where OHV recreation is restricted in the ISDRA would generally contribute to the semi-primitive non-motorized setting, to the semi-primitive motorized setting, and to a small degree, the rural setting. An interpretive area, closed to motorized use, in the Buttercup Management Area, a rural ROS setting, is proposed in all of the action alternatives and would enhance natural and cultural conservation goals.

The larger areas emphasizing natural and cultural resource conservation would contribute to the semi-primitive non-motorized setting because other more developed settings are generally less compatible with natural and cultural resource objectives. Alternative 3 proposes large areas of semi-primitive non-motorized in the ISDRA and the closure of Osborne Overlook to overnight camping for the development of an interpretive area. These areas would be closed to all motorized recreation and would have a substantial negative impact on the quality of OHV recreation in the ISDRA.

Alternative 4 proposes the implementation of an adaptive management area that will be classified as semi-primitive motorized and limited use by permit only for the protection of plant and animal species and their habitat. This area encompasses over 33,000 acres of the ISDRA and would reduce the level of open OHV recreation. Opportunities of OHV recreation would continue under a permit program and be limited to a controlled amount of vehicles. This would initially lead to the perception that a significant amount of opportunity has been lost. However, since the level of visitation in this area has been historically low to moderate (exact level of visitation to this area is not known, only estimated), and no more than 525 vehicles per day will be allowed in the area, it is possible that very few, if any visitors will be denied access to the area during the season.

During the seasonal closure of the area for the protection of reptile species, there will be a significant level of OHV recreation opportunity lost. The time period of the seasonal closure coincides with the low visitation season in the dunes, therefore impacts to recreation would be reduced.

Mitigation Measures

Under all action alternatives, there will be both a loss of available overnight camping space and a possible shift in visitation patterns due to the designation of the ROS classes and the inclusion of all areas into the fee area. These negative recreational impacts should be mitigated to minimize the effects on the recreating public. A proactive approach should be

taken in order to control any future shift of visitation patterns in a manner that will benefit the public and the BLM.

The two new law enforcement “tools” discussed in the alternatives will have a negative impact on law breakers and law abiding visitors to the dunes. However, the public will also benefit by having a safer experience. These rules were developed to assist the Rangers in enforcing existing laws and bring the recreation area visitors into compliance with other State and Federal rules and regulation. The satisfaction of visitor experiences in the dunes, as well as management of visitor activities, needs to be closely monitored through surveys if these rules are to be used. Once both the visitors and management agree that the rules are no longer needed, they should be removed and not enforced.

Effects On Current Issues

Several of the issues, concerns, and opportunities identified by the public and BLM concern factors that degrade the quality of recreation experiences. The alternatives were designed to address several of the current issues and the implementation of them will have direct and indirect effects recreation.

Although many issues, concerns, and opportunities were identified in the public scoping process, the major concerns of the recreational visitors of the ISDRA are keeping the dunes open to OHV use, keeping the dunes open to vehicle camping, and keeping the dunes safe. All alternatives, except Alternative 1, the No Action Alternative, will reduce the amount of available open OHV area and camping. Although alternatives 2 and 4 would have the least amount of impact, they both limit the available area for OHV recreation and vehicle camping, and non-motorized camping. Alternative 3 would severely limit the amount of OHV opportunity. The concern is that these alternatives limit the open area for OHV recreation through the implementation of the adaptive management area. Closures, or limiting the existing open areas, will force OHV enthusiasts into smaller areas, which has already occurred in several areas throughout the California Desert. This increase in density of visitors in the dunes areas could not only degrade the OHV recreational experience, but also could affect the safety of the area. Keeping the dunes open under the 1987 RAMP conditions would allow the lowest density of visitors and the most area to disperse throughout the ISDRA. Hikers and equestrian visitors have rarely used the dunes. During the implementation of the temporary lawsuit closures, the BLM conducted a thorough monitoring program of the temporary closures. During this time the BLM was required to conduct aerial over flights and record intrusions into the closures. Over the two visitation seasons, the flight crew leads (Bower, FY01 and Himmerich, FY02) did not see any non-motorized recreational use in the OHV closure areas.

As discussed in earlier chapters, the dunes have experienced a number of unlawful visitors over the last several years. All alternatives, except Alternative 1, will address this issue through the enforcement of the current rules and regulations with a larger staff of law enforcement rangers. The possible implementation of the two proposed law enforcement tools regarding alcohol and curfews will help to address these concerns and will have both negative and positive impacts to the recreational experience, as discussed previously.

Cumulative Effects

The demands for OHV recreation in other areas are affected by actions taken in the ISDRA. The implementation of the Fee Demonstration Program, and the increased law enforcement in the Dunes has already started to spatially displace visitors throughout the desert. Through informal conversation with other OHV area managers, the El Centro Field Office has been advised that other areas are experiencing an increased level of visitors who used to come to the ISDRA. Some of these areas are Plaster City, Superstition Mountains, Ocotillo Wells, and Dumont Dunes Open Areas.

As discussed in Chapter 3, OHV popularity in California continues to rise and legal opportunities for OHV recreation continues to decrease. At this time there is pending legislation that could possibly close another 2.5 million more acres as designated wilderness throughout California and other states (in addition to the 7,661,069 acres designated through the California Desert Protection Acts PL 103-433). There are areas within the El Centro Field Office area and the CDD that could be lost for any OHV opportunity. Also, several land use plans (listed below) around the desert could limit or close OHV open and limited areas within the CDD. These cumulative actions have been part of the cause of the dramatic increase of activity in the existing legal OHV open areas. California State Parks has documented an increase of 52% in the State Vehicle Recreation Areas between FY 86 and FY 00. Street licensed 4WD vehicle registrations in California have also increased 74% (290,651 to 506,585) between 1994 and 2001. Many of these street legal vehicles are used in the ISDRA and other OHV sites.

Land use plans that affect the cumulative impacts:

- Northern and Eastern Mojave Planning Effort
- Northern and Eastern Colorado Desert Coordinated Management Plan
- West Mojave Habitat Conservation Plan
- Western Colorado Route of Travel

Cumulatively, these actions, and trends could cause some displacement of OHV activity from the ISDRA to other areas. It is unknown, and difficult to predict, where the visitation shift would occur. It is possible that the shift could occur into areas that currently require little recreational management or have a more sensitive habitat. The increased density of OHV recreation into the remaining legal areas would lead to a decrease in visitor satisfaction and public safety. As visitor density increases, the possibility of conflicts between visitors and the possibility of accidents increases.

4.2 Biological Resources

This section evaluates the project alternatives in terms of their potential impacts to biological resources. Biological resources are categorized as habitat types, specialstatus plants, and special-status and endemic wildlife as described in Chapter 3, Affected Environment. The Biological Assessment for the project also addresses specific impacts to, and mitigation for, the Peirson's milk-vetch, desert tortoise, and flat-tailed horned lizard.

Assumptions and Assessment Guidelines

Impacts to biological resources, as discussed in this section, are assumed to be adverse unless stated otherwise. The baseline conditions for this analysis are described as Alternative 1 (see Chapter 2). Analysis of the potential impacts focuses on changes in anticipated patterns of recreation use, both location and intensity that would result from implementing an alternative.

Alternative 1 does not include the designation of management areas and ROS classifications as described for the action alternatives (Alternatives 2, 3 and 4). For Alternatives 2, 3, and 4, the eight management areas and one mile area around the ISDRA referred to as the planning boundary area as described in Chapter 2 will be collectively referred to as the Plan Area. The assessment of changes in the recreation use patterns of these three action alternatives is based on changes in ROS classifications as described in Section 4.1, Recreation Resource. The ROS classifications designate the extent and nature of OHV activities that characterize a desired future condition associated with a particular alternative. Impacts considered in this chapter are then based on the extent to which the natural environment is likely to be modified by this level of activity, and thereby will serve as an index to potential changes in impacts to biological resources. The relative importance and sensitivity of biological resources in the vicinity of the proposed activities or development was factored into the impact analysis.

For each of the alternatives, the three predominant habitat types (creosote bush scrub, psammophytic scrub, and microphyll woodland) within the ISDRA were considered. These habitat types would not be impacted by OHV recreation within the North Algodones Dunes Wilderness, which is closed to OHV use. Although canal-influenced vegetation is a fourth habitat type, it was not quantified for any of the alternatives because this habitat type is not anticipated to receive impacts as a consequence of OHV use. Such vegetation is on the margin of canals, in situations that are not suitable for OHV activity, and are consequently avoided by OHV users.

Impacts

Alternative 1

Under Alternative 1, the No Action Alternative, the ISDRA would continue to be managed based on the existing and approved management policies of the 1987 RAMP. Therefore, recreational facility development identified in the 1987 RAMP would be implemented. In addition, this alternative includes the designation of the North Algodones Dunes Wilderness Area, federal listing of the Peirson's milk-vetch as a threatened species, and the release of Wilderness Study Area 362 from further studies.

This alternative does not include the current interim OHV and camping closures. Also, there would be no revised biological monitoring or adaptive management program, new management areas would not be designated, and ROS classifications would not be assigned under this alternative.

Between 1985 and 2000, the number of visits at the ISDRA approximately tripled. This increase in visitor use represents an annual growth rate of approximately 7.5 percent during the period 1985 to 2000. In comparison, the State of California Department of Recreation has estimated growth in statewide OHV activity of approximately 3.5 percent annually. These two estimates represent the range of projected increases in visitation at the ISDRA under Alternative 1.

Habitat Types

Potential impacts to habitat types including creosote bush scrub, psammophytic scrub, and microphyll woodland are expected to occur under Alternative 1. This is based on the description of Alternative 1 (see Chapter 2) that includes retaining OHV recreational activities in the entire ISDRA (with the exception of the North Algodones Dunes Wilderness Area), and based on the anticipated effects of increased visitor use over time.

The estimated area of each of the three habitat types potentially impacted under Alternative 1 is shown in the table below. The closure of the wilderness area to motorized vehicles has retained 26,202 BLM managed acres of habitat in an undisturbed setting. Approximately 181,182 BLM managed acres could remain available to motorized recreational activities. (Please note that the acreage in the chart below does not “add up” to the number of acres of BLM managed land as the table below includes non-BLM managed land and the table below does not include other habitat types.)

Habitat Type	Closed (Acres)	Open (Acres)
Creosote Bush Scrub	3,144	48,687
Psammophytic Scrub	15,983	91,702
Microphyll Woodland	7,075	57,831

The habitat fragmentation, soils compaction, and other potential impacts discussed below would not occur in the closed areas. Anticipated direct impacts to areas not closed to OHV recreational use would include loss, degradation, and fragmentation of habitat, particularly creosote bush scrub and psammophytic scrub. These impacts described below are not substantively different than the baseline conditions (see Chapter 3), and, therefore, the only marginal impacts would be those that would occur from increased visitor use.

Under this alternative, facility development in accordance with the 1987 RAMP would still occur and is anticipated to contribute to potential impacts to habitat. This construction, however, is anticipated to occur in areas already heavily used for OHV recreation (as opposed to areas that contribute to maintaining habitat of the affected species). Therefore, impacts to habitat resulting from facility development are expected to be minimal.

Indirect impact is anticipated as a result of the increased visitor use associated with facility expansion. This includes campground and access improvements resulting in increased use and in localized impacts to these habitat types. Indirect impacts include soil erosion and dust generation. Plants smothered by dust may experience reduced photosynthesis and transpiration, ultimately reducing vegetative cover. As desert environments are not generally conducive to rapid perennial plant growth (including regrowth), revegetation could take decades. Although the central deep sand dunes are not vulnerable to invasions of invasive species, reducing vegetative cover and disturbing soils as a result of recreational activities could increase the potential for such invasions. Invasive species in the eastern and western margins of the Plan Area, where underlying substrate is hard packed, may eventually displace some native vegetation.

Special-Status Plants

Potential impacts to special-status plants are expected occur under Alternative 1. This assumes that the entire ISDRA, with the exception of the North Algodones Dunes Wilderness Area, would remain open to OHV recreational activities and projected visitor use would increase over time. Special-status plants that may be impacted from OHV and associated recreational development include: Peirson's milk-vetch, Algodones dunes sunflower, Wiggins' croton, giant Spanish needle, and sand food. Direct and indirect adverse impacts are anticipated to be similar to those described for the habitat types. Each of these species is dependent on psammophytic scrub habitat. Under Alternative 1, approximately 15 percent of this habitat type will be off limits to OHV use in the North Algodones Dunes Wilderness Area and 85 percent would be open to OHV use.

Special-Status and Endemic Wildlife

As with habitat types and special-status plants, potential impacts to specialstatus and endemic wildlife are expected to occur under Alternative 1. This expectation is based on the assumption that the entire ISDRA, with the exception of the North Algodones Dunes Wilderness Area, will remain open to OHV recreational activities and the projected visitor use would increase over time. Primary impacts to special-status and endemic wildlife include direct mortality from recreational vehicles. Secondary impacts include destruction of forage and habitat; crushing of burrows; attraction of predators due to improper disposal of food and litter; harassment and illegal collection of wildlife; harassment by unleashed pets; dust, noise, lights associated with OHV and camping activities; and increased potential for invasion of non-native plants.

It has been shown that prolonged noise can adversely affect some lizards and small mammals. Investigations by Brattstrom and Bondello (1983) on the effect of OHV noise included the desert kangaroo rat (*Dipodomys deserti*), desert iguana (*Dipsosaurus dorsalis*), and Mohave fringe-toed lizard (*Uma scoparia*). Desert kangaroo rats and fringe-toed lizards demonstrated an immediate loss of hearing when exposed to OHV sounds of 95 dBA. Recovery of the kangaroo rat hearing took several weeks, during which time they would have been more vulnerable to predation. Effects are more likely where prolonged noise occurs. However, it is not known whether duration of vehicle noise levels anticipated at the ISDRA negatively impact wildlife. A single OHV can generate a noise level of 92 dB(A) at 50 feet, although the duration of the exposure is likely to be quite short as a vehicle passes by. Wildlife exposure to OHV noise is very localized and only at relatively high levels during the six holiday weekend during the year.

OHV activity tends to be concentrated within the psammophytic scrub. As a consequence, some special-status wildlife species such as the Colorado Desert fringetoe lizard and endemic dune beetles occurring in these dunes would be killed or injured by OHV activity. Access routes through microphyll woodland habitat and open desert wash areas may result in direct impacts to the desert tortoise through running over tortoises or crushing burrows. These activities may also affect Couch's spadefoot toad habitat through disturbance of small ephemeral pools for which this species depends. The tendency for Couch's spadefoot toad to aggregate during breeding season may pose a higher risk from an increase in OHV activity in this area.

For each of the alternatives potential impacts to Colorado Desert fringetoe lizards and flat-tailed horned lizards were considered in detail. For the Colorado Desert fringe-toed lizard it is assumed that the all areas of psammophytic scrub and creosote bush scrub are occupied habitat. Under Alternative 1, approximately 19,127 acres, of habitat would be closed to motorized recreation in the North Algodones Dunes Wilderness while approximately 140,389 acres of habitat would remain open to OHV use.

Alternative 2

There are two distinct differences in ROS classifications between Alternative 2 and both Alternatives 3 and 4. Under Alternative 2, the Glamis Management Area and Adaptive Management Area will be designated as roaded natural and semi-primitive motorized, respectively. The management focus for Alternative 2 would be a combined approach to accommodate continued use of the Plan Area for OHV recreational opportunities as well as protection of natural and cultural resources. The key component contributing to resource protection under Alternative 2 is the establishment of the Adaptive Management Area and implementation of an adaptive management program. Management of this area would include evaluating the effects of and revising management actions, as needed, to achieve a balance of providing a high quality recreation opportunities and conserving high value natural resources. Under Alternative 2, the visitor use is expected to increase from 3.5 to 5 percent annually relative to the low end estimated for the baseline. Additionally, the ROS classification of the Adaptive Management Area is expected to slightly increase overall OHV-related visitor use relative to the baseline. Therefore, this use is expected to be higher than under Alternative 3 (the area would be closed) but lower than Alternative 4.

Habitat Types

Potential impacts to habitat types including creosote bush scrub, psammophytic scrub, and microphyll woodland are expected to decrease overall under Alternative 2, relative to Alternative 1. This conclusion is based on the designation of ROS classifications, implementation of an adaptive management strategy in the Adaptive Management Area, and projected annual visitor use increase differences.

The area of each habitat type under Alternative 2 is shown in the table below. The Plan Area encompasses approximately 51,831 acres of creosote bush scrub, 107,685 acres of psammophytic scrub, and 64,906 acres of microphyll woodland totaling 224,422 acres of these three habitat types. These figures were used for the analysis of all action Alternatives. The North Algodones Dunes Wilderness Management Area would provide a total of 26,202 BLM managed acres closed to motorized recreation. The Adaptive Management Area would

provide a total of 33,289 BLM managed acres of controlled access. The Planning Area would provide a total of 48,312 BLM managed acres of limited use. These three areas total 107,803 BLM managed acres that provide increased habitat protection through controlled access or use, or closure under Alternative 2. The remaining management areas open to OHV use total 99,581 acres. Because the Plan Area encompasses an area of predominantly psammophytic scrub, this habitat type has the largest area amongst the habitat types. (Please note that the acreage in the chart below does not “add up” to the number of acres of BLM managed land as the table below includes non-BLM managed land and the table below does not include other habitat types.)

Habitat Type	Closed To OHV Use (Acres)	Controlled Access (Acres)	Open to OHV Use (Acres)
Creosote Bush Scrub	3,144	30,019	18,668
Psammophytic Scrub	15,983	24,726	66,976
Microphyll Woodland	7,075	37,749	20,082

Moderate facility development, campground improvements, and road maintenance are anticipated under Alternative 2, and are expected to result in impacts to habitats similar to those described under Alternative 1. However, impacts to habitat within the Adaptive Management Area and the area that is encompassed by the Planning Area under Alternative 2 are expected to substantially decrease relative to Alternative 1. Because OHV use would be monitored and controlled within the Adaptive Management Area, only minor impacts to habitat are anticipated. Enforcement of the Adaptive Management Area and the limited use area surrounding ISDRA could include installing and maintaining signage. This could produce an edge effect along the boundaries, resulting in some loss of perennial vegetation. Concentrated recreational use is anticipated to continue within adjacent open areas, even within the camping areas, and may occasionally lead to unauthorized activity in closed or restricted areas. Creosote bush scrub and microphyll woodland, characterized by large upright woody plants with sharp branches, are generally avoided by OHV users. Therefore, OHV impacts would likely continue to be primarily within psammophytic scrub, which encompasses 107,685 acres.

Special-Status Plants

Impacts to special-status plants are expected to decrease under Alternative 2. This conclusion is based on adoption of an adaptive management approach, which entails monitoring special-status plants. Moderate facility development, campground improvements, and road maintenance are anticipated to result in impacts similar to those described under Alternative 1. However, impacts to special-status plants within the Adaptive Management Area and Planning Area are expected to substantially decrease relative as a result of implementing conservation measures. Because OHV use would be controlled within the Adaptive

Management Area, disturbance to special-status plants are anticipated on the newly established boundary of the area. Enforcement of the Adaptive Management Area and the limited use area surrounding ISDRA could include installing and maintaining signage. Concentrated recreational use is anticipated within adjacent open areas, and at camping areas, and would result in the disturbance of special-status plants that may occur there. As previously stated, OHV use has been historically concentrated within psammophytic scrub. Therefore, OHV impacts are anticipated to be concentrated within this important habitat type for the five special-status plant species. For Alternative 2, 40,709 acres of psammophytic scrub would receive protection either through closed OHV access in the North Algodones Dunes Wilderness or controlled access in the Adaptive Management Area.

Special-Status and Endemic Wildlife

Impacts to special-status and endemic wildlife are expected to decrease as a result of adopting adaptive management measures. Moderate facility development, campground improvements, and road maintenance are anticipated to result in impacts similar to those described under Alternative 1. However, impacts to special-status and endemic wildlife within the Adaptive Management Area and limited use area surrounding ISDRA are expected to substantially decrease. Because OHV use would be controlled within the Adaptive Management Area, negligible impacts to special-status and endemic wildlife are anticipated. Enforcement of the Adaptive Management Area and the limited use area surrounding ISDRA could produce an edge effect along the boundaries, resulting in loss or displacement of special-status and endemic wildlife there. Concentrated recreational use in the open areas may also result in the loss or displacement of special-status and endemic wildlife. Additionally, OHV activities, and therefore impacts, are anticipated to be concentrated within psammophytic scrub, which is an important habitat type for the Colorado Desert fringetoe lizard.

As for all alternatives, potential impacts to Colorado Desert fringetoe lizards and flat-tailed horned lizards were considered in detail. For the Colorado Desert fringe-toed lizard it is assumed that the all areas of psammophytic scrub and creosote bush scrub are occupied habitat. Under Alternative 2, approximately 19,127 acres of habitat would be closed to motorized recreation in the North Algodones Dunes Wilderness, approximately 54,745 acres of habitat would be under controlled access within the Adaptive Management Area or limited access in the Planning Area; and approximately 85,644 acres of habitat in areas open to OHV use.

Alternative 3

Under Alternative 3, the Plan Area would be managed under the same management area designations as Alternatives 2 and 4, but different ROS classifications would apply to those management areas. The management focus for this alternative would be protection of natural and cultural resources through the use of closures. Accordingly, Alternative 3 would designate the Mammoth Wash, and Adaptive Management Areas as semi-primitive non-motorized. Management of these areas would be much the same as the North Algodones Dunes Wilderness Management Area in terms of natural resources protection resulting from the prohibition of OHV activities. It is expected that the one-mile perimeter area within the plan area would receive little use due to its location near the closed areas and its OHV limited use classification.

Under Alternative 3, visitor use is expected to slightly increase from 3.5 to 4 percent annually relative to the low end of the baseline. However, the ROS classifications of the Mammoth Wash and Adaptive Management Areas are expected to reduce overall OHV-related visitor use in these areas. Therefore, this growth in visitor use is expected to be lower than either Alternatives 2 or 4 within these three management areas.

Habitat Types

Potential impacts to the three predominant habitat types are expected to decrease under Alternative 3 based on the projected modest increases in visitor use and on the impacts extrapolated from the ROS classifications previously described.

As shown in the table below, the closure of three management areas to motorized vehicles and the anticipation that the one mile planning area would receive little use, would result in approximately 130,310 acres of the three habitat types being mainly undisturbed by OHV use in the future. This represents the combined total of the Mammoth Wash Management Area, North Algodones Dunes Wilderness Management Area, Adaptive Management Area, and Planning Area. This is by far the largest area of closure of any of the alternatives. The remaining management areas total of 94,112 acres would remain open to OHV use.

As the table shows, microphyll woodland is provided the greatest of protection from impacts from OHV use under Alternative 3 and compared to the other two habitat types under consideration.

Habitat Type	Closed to OHV use (Acres)	Open to OHV use (Acres)
Creosote Bush Scrub	34,678	17,153
Psammophytic Scrub	47,705	59,980
Microphyll Woodland	47,927	16,979

Minor facility development, campground improvements, and road maintenance are anticipated to result in similar, but lesser impacts under Alternative 3 than under the other alternatives. The major difference between Alternative 3 and others is that no or negligible impacts to habitats from OHV use are anticipated within the Mammoth Wash, North Algodones Dunes Wilderness, Adaptive, and Planning Areas due to the closures. However, the anticipated edge effect, in the form of crushing of vegetation and soil disturbance along the closed boundaries of these areas, may be substantial relative to that under other alternatives. This may ultimately result in habitat loss along these boundaries. A substantial increase in the concentration of recreational activities in the areas that would remain open to OHV use may also result from a reduction in area available for OHV recreation.

Unauthorized activities in the closed areas may also occur. As stated earlier, OHV use has historically been concentrated within psammophytic scrub. However, due to a reduction in area open to OHV recreation under this alternative, increased impact to creosote bush scrub and microphyll woodland are expected as recreational enthusiasts seek other areas to enjoy their sport. Nonetheless, these potential impacts are considered minor relative to the benefit of protecting habitat within the closed management areas.

Special-Status Plants

Based on the projected visitor use increases and ROS classifications; impacts to special status plants are expected to decrease under Alternative 3 relative to the other alternatives. Minor facility development, campground improvements, and road maintenance are anticipated to result in similar, but lessened impacts relative to other alternatives. The major difference between Alternative 3 and other alternatives is that no OHV impacts to special status plants are anticipated within the Mammoth Wash, Adaptive, and Planning Areas due to a non-motorized ROS classification of Mammoth Wash and the Adaptive Management Areas. However, the anticipated edge effect along the closed boundaries may ultimately result in loss of special-status plants along the boundaries. A substantial increase in the concentrated recreational use in the areas still open to OHV use may result in increased losses of special-status plants there. Additionally, OHV impacts are anticipated to be concentrated within psammophytic scrub, which is an important habitat type for the five special-status plants. A major feature of the effects of the enactment of this alternative would be that approximately 47,705 acres of psammophytic scrub, or 44 percent of the total habitat type within the ISDRA, would not be greatly impacted due to OHV use.

Special-Status and Endemic Wildlife

Based on the projected visitor use increase and ROS classifications, impacts to special-status and endemic wildlife are expected to decrease under Alternative 3. Minor facility development, campground improvements, and road maintenance are anticipated to result in similar, but lessened, impacts relative to the baseline. The major difference between Alternative 3 and others is that no impacts to special-status and endemic wildlife resulting from OHV use are anticipated within the Mammoth Wash, North Algodones Dunes Wilderness, Adaptive, and Planning Areas due to the closures of the three management areas. However, the anticipated edge effect along the closed boundaries may be substantial. This may ultimately result in loss or displacement of special-status and endemic wildlife along the boundaries. A substantial increase in the concentrated recreational use in the open areas may result in increased impacts to special-status and endemic wildlife. Additionally, OHV impacts are anticipated to be concentrated within psammophytic scrub, which is an important habitat type for the Colorado Desert fringe-toed lizard. Nonetheless, these potential impacts are considered minor relative to the benefit of protecting these species within the closed management areas.

Potential impacts to Colorado Desert fringe-toed lizards and flat-tailed horned lizards were again considered in detail. For the Colorado Desert fringe-toed lizard it is assumed that the all areas of psammophytic scrub and creosote bush scrub are occupied habitat. Under Alternative 3, approximately 82,383 acres or 52 percent of habitat would not be impacted due to motorized recreation; and approximately 77,133 acres of habitat, or 48 percent in areas open

Alternative 4

Under Alternative 4, the Plan Area would be managed under the same management areas Alternatives 2 and 3 but different ROS classifications. There are two differences in ROS classifications between Alternative 4 and the other alternatives. Under Alternative 4, the Adaptive Management Area and Mammoth Wash Management area would be designated

roaded natural. These two management areas encompass a total of approximately 41,394 BLM managed acres, or 20 percent of the BLM managed Plan Area.

Glamis Management Area, Dune Buggy Flats Management Area, and Ogilby Management Area would be designated as rural. These three areas encompass a total of approximately 62,408 acres or 30 percent of the BLM managed Plan Area. The Gecko Management Area and Buttercup Management Area would be designated as Urban. These two areas encompasses 29,067 acres, or 14 percent of the BLM managed Plan Area

The change in ROS classifications under Alternative 4 would result in substantially increased OHV recreational opportunities. The change would also effectively result in implementation of a desired future condition that would accommodate a shift in visitor use from low-moderate under the other alternatives to moderate-high under Alternative 4. The management focus for this alternative would be providing additional facilities to accommodate increased visitation, including new campgrounds, camping, toilets, trash stations, and information kiosks. Under Alternative 4, the visitor use is expected to increase from 3.5 to 6percent annually relative to the low end of the baseline. Additionally, revising the ROS classifications of the Adaptive Management Area and Glamis Management Area is expected to increase overall OHV-related visitor use. Therefore, this growth rate is expected to be the highest relative to Alternatives 2 and 3.

Habitat Types

Based on the projected visitor use increases and previously described ROS classifications, potential impacts to habitats are expected to increase under Alternative 4.

The area of each habitat type under Alternative 4 is shown in the table below. As shown in this table, the continued closure of the North Algodones Dunes Wilderness Management Area would result in retaining 26,202 BLM managed acres of habitat in an undisturbed setting. The Adaptive Management Area would provide an additional total of 33,289 BLM managed acres of controlled vehicle access, however, this areas designation as road natural would likely result in increase motorized use and thereby increase impacts. The Planning Area would provide a total of 48,312 acres of controlled use. These three areas total 107,803 BLM managed acres that are managed on controlled OHV use. The remaining management areas total 99,581 BLM managed acres and would be open to OHV use. (Please note that the acreage in the chart below does not “add up” to the number of acres of BLM managed land as the table below includes non-BLM managed land and the table below does not include other habitat types.)

Habitat Type	Closed (Acres)	Controlled Access (Acres)	Open (Acres)
Creosote Bush Scrub	3,144	30,019	18,668
Psammophytic Scrub	15,983	24,726	66,976
Microphyll Woodland	7,075	37,749	20,082

Substantially increased facility development, campground improvements, and road maintenance are anticipated to result in increased impacts to habitats as a result of increased OHV activity. With the ROS designation of the Glamis Management Area as rural and Adaptive Management Area as roaded natural, impacts to habitat are also anticipated to increase in these management areas as a result of increased recreation. Thus, under this alternative, the greatest difference is the potential increase in impacts to habitats within the Glamis and Adaptive Management Areas. Although the table illustrates the total area of habitat under controlled access as 92,494 acres, impacts to habitat within the Adaptive Management Area are anticipated to be higher than for the other alternatives because it is expected that this area would receive increased use under this alternative. Microphyll woodland is provided the greatest percentage of closure within the Plan Area. 15 percent or less of each habitat type within the Plan Area are closed under Alternative 4.

Special-Status Plants

Based on the projected annual growth rate increase and ROS classifications, potential impacts to special-status plants are expected to increase under Alternative 4. Increased facility development, campground improvements, and road maintenance are anticipated to result in increased OHV use in the Plan Area, and therefore increased impacts to special status plants. With the ROS designation of the Glamis Management Area as rural and the Adaptive Management Area as roaded natural, impacts to special-status plants are anticipated to increase in these management areas as OHV activity increases. Under this Alternative only the 15,983 acres of psammophytic scrub within the North Algodones Dunes Wilderness Area would be the only area supporting the special status plant species that would not experience increased OHV use.

Special-Status and Endemic Wildlife

Based on the projected annual growth rate increase and ROS classifications, impacts to special-status and endemic wildlife are expected to increase for Alternative 4. Additionally, increased facility development, campground improvements, and road maintenance are anticipated to result in increased OHV activity and, therefore, impacts to special-status and endemic wildlife. With the ROS designation of the Glamis Management Area as rural and the Adaptive Management Area as roaded natural, impacts to special-status and endemic wildlife are anticipated to increase in these management areas as level of OHV activity increases.

As for all alternatives, potential impacts to Colorado Desert fringed-toed lizards and flat-tailed horned lizards were considered in detail. For the Colorado Desert fringed-toed lizard it is assumed that the all areas of psammophytic scrub and creosote bush scrub are occupied habitat. Under Alternative 2, approximately 19,127 acres, or 13 percent, of habitat would be closed to motorized recreation in the North Algodones Dunes Wilderness, approximately 54,745 acres of habitat would be under controlled access within the Adaptive Management Area or limited access within the Planning Area; and approximately 85,644 acres of habitat in areas open to OHV use.

Mitigation Measures

No additional mitigation measures are required beyond those management actions incorporated into the action alternatives.

Cumulative Effects

Land use plans that affect the cumulative impacts:

- Northern and Eastern Mojave Planning Effort
- Northern and Eastern Colorado Desert Coordinated Management Plan
- West Mojave Habitat Conservation Plan
- Western Colorado Desert Route of Travel Plan

Cumulatively, these actions, and trends could cause the displacement of OHV activity from the ISDRA to other areas or from other areas to the ISDRA. It is unknown, and difficult to predict, where the visitation shift would occur. It is possible that the shift could occur into areas that currently require little recreational management or have a more sensitive habitat. This could have a negative impact on species and their habitat, although each of these plans was developed with an emphasis on species and habitat conservation.

The United States Border Patrol frequently utilizes the project area, and other desert areas near the project area for surveillance and apprehension of undocumented immigrants. These activities result in surface disturbance, and some habitat and species loss.

The Salton Sea Restoration Plan, the Coachella Valley Water Management Plan and the IID Water Conservation and Transfer Project and Habitat Conservation Plan each have the potential of surface disturbance, and some habitat and species loss.

The North Baja Pipeline Project is nearly complete. This project had some surface disturbance, loss of habitat and species.

The Mesquite Mine has created some loss of habitat to the desert tortoise. The mine has a program to physically relocate tortoise that may be impacted by the mining operations to a different location.

4.3 Law Enforcement and Public Safety

The mission of the BLM is “to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations” (BLM, 2002). This section assesses impacts to law enforcement and public safety as a result of implementing the alternatives presented in Chapter 2 of this EIS.

Impacts Common To All Alternatives

The majority of visitors to the ISDRA are seeking a recreational experience that is consistent with activities that conform to existing laws and public safety. Other visitors, however, are seeking a recreational experience that is unlawful or contributes to threats to public safety. Most of these instances of unlawful behavior occur during the six major holiday weekends during the high-use season (i.e., Halloween, Thanksgiving, New Year’s, Martin Luther King Day, President’s Day, and Easter). During these weekends, illegal behavior increases with the increased visitor use.

The objective of all the alternatives assessed in this EIS is to provide law enforcement staff, associated equipment, and facilities sufficient to promote public safety and to curtail illegal behavior, thus providing enhanced opportunities for visitors seeking recreational experiences that comply with public safety and are conducted in accordance with pertinent laws. All the alternatives, including the No Action, are anticipated to improve public safety compared with the existing baseline conditions.

For all alternatives, the need for additional law enforcement staff would occur mostly during the six major holiday weekends. Temporary law enforcement staff would continue to be used to encourage public safety during the high visitor use weekends.

Under all the alternatives, visitor use is anticipated to increase over time as a result of continuing popularity of the dunes and limitations on other OHV recreational opportunities in the CDCA Plan Area.

Impacts Common To The Action Alternatives

For the action alternatives (Alternatives 2, 3, and 4), the use of temporary law enforcement officers would continue; and additional permanent staff would be hired.

Other measures for the action alternatives would include a new management tool that could be utilized on an as needed basis. The management tool would be utilized temporarily, as required to maintain law and order, when other more traditional law enforcement tools have not curtailed the lawless behavior at specific locations. It is expected that this tool would be utilized on an infrequent basis. This tool is the temporary closures of specific areas such as Competition Hill (North and South), Oldsmobile Hill, Test Hill, Patton Valley, the sand drags, and other areas as needed. The time that the closure begins and ends would be announced by law enforcement every time the temporary closure tool is utilized. Visitor use

and incident data will be monitored and used to evaluate the need for this tool and to develop the criteria for its use.

The action alternatives also include another tool that can be used as needed. This tool is a ban on alcohol use outside designated camping areas. The time that the ban begins and ends would be announced by law enforcement every time the temporary alcohol ban tool is utilized. Visitor use and incident data will be monitored and used to evaluate the need for this tool and to develop the criteria for its use. Members of the American Sand Association, BLM, Imperial County Sheriff's Office and others will jointly address safety problems with the sand drags at Gecko Road and Dune Buggy flats. Speed and reckless driving laws for vehicles traveling within 50' of the crowd will be strictly enforced by the use of radar guns and existing enforcement efforts. In addition, a strong public education campaign will be implemented. Better posting and enforcement of speed limits, and a zero tolerance policy for holiday weekends will continue.

Overall, it is anticipated that implementing the management actions above would deter visitation by users who engage in the unlawful and/or dangerous activities. This initial decrease in visitor use, however, would be offset by management actions intended to improve the overall quality of the recreational experience at ISDRA. It is anticipated that new and improved facilities, improved public safety measures, public information encouraging off-peak visits, and other measures would attract visitors seeking OHV recreation experiences consistent with legal activities.

Under the action alternatives (Alternatives 2, 3, and 4), public safety is expected to improve compared with baseline conditions because of the proposed increases in permanent law enforcement staff and the additional management measures (e.g., restrictions on alcohol consumption, posting speed limits).

Impacts

Alternative 1

Under Alternative 1, the objective to encourage public safety would be accomplished by continued use of permanent and temporary law enforcement staff at the popular highuse areas. Law enforcement activities in the ISDRA would continue in accordance with measures specified in the 1987 RAMP. Development of facilities to support law enforcement (e.g., new ranger stations and increases to personnel and associated equipment) would occur only to the extent directed by the 1987 plan. Law enforcement staff will continue to be provided on the six major holiday weekends in numbers sufficient to encourage public safety, and the existing staffing measures would remain in effect.

These conditions would be comparable to the baseline conditions and, therefore, would not contribute to a decrease in conditions of public safety at the ISDRA. The BLM would continue to commit to providing adequate law enforcement staff and would continue to rely on neighboring jurisdictions to provide temporary staff commensurate to meet the anticipated visitor use.

Alternative 2

Under Alternative 2, public safety would be improved through the use of a new ranger station at Cahuilla and a permanent ranger station at Buttercup. These stations will allow for the on-site detention of violators and for improved communication between the officers working throughout the ISDRA. It is expected that public safety would increase and lawless behavior would decrease due to the permanent presence of law enforcement at these locations and increased law enforcement staffing and better interagency coordination.

Alternative 3

Under Alternative 3, public safety would be improved through the use of a new ranger station at Osborne Outlook and a permanent ranger station at Buttercup. These stations will allow for the on-site detention of violators and for improved communication between the officers working throughout the ISDRA. It is expected that public safety would increase and lawless behavior would decrease due to the permanent presence of law enforcement at these locations and due to the reduction in the number of visitors under this alternative.

Alternative 4

Under Alternative 4, public safety would be improved through the use of new ranger stations at Cahuilla and Buttercup. These stations will allow for the on-site detention of violators and for improved communication between the officers working throughout the ISDRA. It is expected that public safety would increase and lawless behavior would decrease due to the permanent presence of law enforcement at these locations, due to the increase in law enforcement staffing and better interagency coordination. However, this may be off set due to the increase in the total number of visitors under this alternative.

4.4 Social

Effects Common to All Alternatives

The social impacts are described in terms of effects to social well being for all alternatives. The types of things that could affect social well being includes the types and the quantities of the recreational experience that is available. It also includes the perception of conflict concerning resource use and an individual's sense of control over decisions relating to their experience. Other beliefs that could affect a person's social well being includes an individual's sense of control over their future and their sense of job security.

No alternative would affect the demographics included in the affected environment. The affects on major social trends included in the affected environment would be expected to be the same for all alternatives. However, the projected growth rate of the recreational use may be somewhat lower than in the past for all alternatives due to the perception that there may be less recreational opportunities in the future. This perception could result in a delay or hesitation to make major purchases for OHV use. However, according to *Taking the High Road*, OHV purchases are increasing as OHV opportunities are decreasing.

Impacts

This section will include a discussion of the affect that each alternative could have on the various groups identified in Section 3.4 as affected groups.

Alternative 1

Affects to all groups would continue as they have in the past. This alternative is most responsive to the non-local OHV related business owners, the economics of the local communities and the vendors. This alternative is most responsive to the desires of groups and individuals who would like the number of visitors to the ISDRA to remain uncontrolled.

The OHV recreational users would partially support this alternative. Although the unrestricted visitor use would provide a sense of well being, this could be off set by the uneasiness over the lack of increased law enforcement.

Environmental advocacy groups do not support this alternative, as they believe that the current management does not provide sufficient protection to natural resources. The condition of natural resources on public land is important to these groups as they place value in wildlife, plant species, wilderness and solitude.

The vendors would support this alternative since it allows them to continue to operate as they have in the past. The vendors would have an increased sense of well being, as they are more comfortable with the current conditions.

The OHV related businesses would partially support this alternative, as it does not place a restriction on the number of visitors that recreate at the ISDRA. This could increase their

sense of well being, due to a perception of job security. However, local community business owners may not support this alternative, as it does not address the competition between the vendors and the local businesses on land that is privately owned adjacent to the ISDRA. It also does not improve the vendors' compliance with federal vending regulations. The local land owning businesses may have less of a sense of well being due to their perceived unfair competition with the vendors.

The local community would partially support this alternative from an economic viewpoint, but not from a law enforcement viewpoint. The local community desires increased law enforcement, which would not be consistent with this alternative. Many members of the local community involved in some retail and service businesses would desire this alternative, as it does not place a restriction on the number of visitors that recreate at the ISDRA. Other local community business owners would not support this alternative, as it does not address the competition between the local businesses and the vendors. Some members of the local community would have an increased sense of well being due to a perception of job security, whereas others would have a decreased sense of well being due to the competition from vendors. Members of the community that are concerned with lawlessness at ISDRA would have a decreased sense of well being.

This alternative would allow the continued conflict between the vendors and local businesses. It also would not address the growing conflict between the OHV recreational users and the environmental advocacy groups.

Alternative 2

This alternative is a middle ground between the OHV recreational users and the environmental advocacy groups desired management of the ISDRA. Although neither of these groups will be fully satisfied with this alternative, both groups will also have a lot of their basic desires met. The OHV recreational users may have a sense of well being from this alternative because they will be able to recreate in all the areas that they historically utilized. They will not be completely satisfied as there is a permit system that is required for one area that has historically been a low use area and there is the potential of visitor supply restrictions in the future. The environmental advocacy groups may also have somewhat of a sense of well being from this alternative as the resources that they value will be conserved, although they will not be entirely satisfied with this alternative because the recreational use that is allowed is more than the environmental advocacy groups desire. This alternative is most responsive to the desires of groups and individuals who would like a balanced use of the ISDRA.

The vendors would not fully support this alternative since it requires that a popular vending area that is in direct competition with an adjacent private land owned business become a short term vending area. This will reduce competition with the local businesses and bring the vending program closer to the federal vending requirements. Currently most vendors are short term vendors, but a few vendors are long term, staying at their vending location throughout the duning season. Long term vending is allowed at a specific location that will have less direct effect on the locally owned businesses. The development of three short term vending areas will restrict the vendors ability to vend and live at the ISDRA full time. The

vendors would have a decreased sense of well being, due to concerns about future employment security and residential concerns.

The OHV related businesses would likely support this alternative, as it does not place a great restriction on the number of visitors that recreate at the ISDRA and it would reduce competition between the vendors and local businesses. This alternative could increase their sense of well being, due to a perception of job security.

The local community would likely support this alternative from an economic viewpoint, and from a law enforcement viewpoint. The local community desires increased law enforcement, which would be consistent with this alternative. Many members of the local community involved in some retail and service businesses would desire this alternative, as it does not place a great restriction on the number of visitors that recreate at the ISDRA. The local community also believes that visitation limits will have a negative effect on the community. Local community business owners would support this alternative as it places some restrictions on the vendors to bring them into compliance with federal regulation. However, there would still be more competition between vendors and the local businesses than the local businesses would like, as the local businesses would prefer that vending be restricted to holiday weekends. Members of the local community would have an increased sense of well being due to a perception of job security, less competition from vendors and increased law enforcement.

This alternative would partially address the conflict between the vendors and local businesses. It also would at least partially address the growing conflict between the OHV recreational users and the environmental advocacy groups.

Alternative 3

This alternative is most responsive to the environmental advocacy groups. This alternative is most responsive to the desires of groups and individuals who would like to decrease the number of visitors to the ISDRA, to greatly limit the OHV recreational use, and increase resource conservation.

The OHV recreational users would not support this alternative. The restricted visitor use would provide a sense of uneasiness. They would not be able to recreate at the ISDRA in the same numbers and ways as in the past. They would believe that their recreational opportunity at ISDRA was unfairly taken away.

The vendors would not support this alternative since it would severely limit the visitors to the ISDRA and they would not be able to continue to operate as they have in the past. The vendors would have a decreased sense of well being, as they would have fewer opportunities to vend due to the reduction in potential customers.

The OHV related businesses would not support this alternative, as it places a severe restriction on the number of visitors that recreate at the ISDRA. This could decrease their sense of well being, due to a perception of a lack of job security.

The local community would not support this alternative from an economic viewpoint, but would support it from a law enforcement viewpoint. The local community desires increased law enforcement, which would be consistent with this alternative. Many members of the local community involved in some retail and service businesses would not desire this alternative, as it does place a severe restriction on the number of visitors that recreate at the ISDRA. Some members of the local community would have a decreased sense of well being due to a perception of a lack of job security, whereas others would have an increased sense of well being due to reduction in lawlessness.

This alternative would increase the continued conflict between the vendors and local businesses, as the number of potential customers would decrease. It also would not address the growing conflict between the OHV recreational users and the environmental advocacy groups since the OHV users would feel that they were not provided with a fair amount of recreational opportunities.

Alternative 4

This alternative is most responsive to the OHV recreational users, the OHV related business owners, the local communities and the vendors. This alternative is most responsive to the desires of groups and individuals who would like the number of visitors to the ISDRA to remain the same or increase and who are less concerned about resource conservation. Since the recreational opportunities would be greatest under this alternative, these groups would gain a sense of well being as they would be able to recreate and have a perception of job security. Some members of the local community may be concerned about the potential for an increase of lawlessness. This could create a sense of uneasiness.

Environmental advocacy groups would not support this alternative, as they believe that it does not provide sufficient protection to natural resources. The condition of natural resources on public land is important to these groups as they place value in wildlife, plant species, wilderness and solitude. Implementation of this alternative would create a feeling of uneasiness for members of these groups.

This alternative may possibly reduce the continued conflict between the vendors and local businesses since the customer base may expand, although the vendors would remain in direct competition with the local businesses. It also would not address the growing conflict between the OHV recreational users and the environmental advocacy groups. This conflict would escalate, as the environmental advocacy groups would believe that this alternative did not fairly address their concerns.

Mitigation

No mitigation is required, although the vendor program should be monitored and possibly adjusted to minimize impact on the local businesses.

Cumulative Effects

None identified.

4.5 Economic

This section presents the economic impacts of implementing the alternatives presented in Chapter 2.

Assumptions and Assessment Guidelines

Regional economic impacts of recreation are typically assessed on the basis of visitor trip expenditures. The money spent by visitors on food, lodging, and transportation is the input into the local economy. Management alternatives that affect the amount or type of money spent would affect the local economy.

Estimates of total trip expenditures were developed from data on the number of visits to the ISDRA under each of the management alternatives in combination with trip-related expenditures based on a 1993 study developed by the OHV Division of the California Department of Parks and Recreation (California Parks and Recreation, 1997).

Trip-related expenditures (e.g., food, lodging, transportation, and activities) are typically divided into three groups: those made at or near home, those made en route to and from the recreation site, and those made at or near the recreation site. Only expenditures made by nonresidents were used in determining economic impacts. Although expenditures by local residents could support recreation related businesses, these expenditures were not included in the economic impact analysis. These expenditures that were analyzed would include all expenditures made at or near the site as well as a portion of the expenditures made en route.

For this analysis, the following assumptions were made:

The major regions of influence that are included in the economic impact analysis are Imperial County, California, and Yuma County, Arizona. The actual amount of money spent outside of these areas is large, however, the potential impacts to Imperial County and Yuma County would be more noticeable as these counties have existing high unemployment rates and a less diverse economic base. Although many businesses that specialize in OHV related equipment and supplies that are located outside this area could be significantly impacted on an individual basis, this impact would have less effect on the overall economics of the region in which the business is located because these areas generally have healthy economic bases. Businesses that provide equipment and supplies are located throughout the United States.

Ninety percent of the visitors to ISDRA are nonresidents of Imperial County.

Of the total nonresident visitors, 86 percent are from other parts of California while the remaining 14 percent are from Arizona.

Arizona residents spend approximately 60 percent of their trip expenditures at home. Of the remaining 40 percent, 30 percent is spent in Yuma and 10 percent in Imperial County.

A visit to the ISDRA represents a 3-day (2-night) stay.

Because mean trip expenditures are on a per-household basis and visitation data are on a per-person basis, household trip expenditures are divided by three (approximately the number of persons per household or the number of persons per family in California (DOF, 2001)).

Trip expenditures are analyzed the same for OHV and non-OHV visitors. The 10% of visitors that stated they recreated at the dunes for reasons other than OHVs included people who came to the ISDRA to be with friends and family, etc. It is assumed that these individuals came to the dunes with OHV recreational enthusiasts and their expenditures would be similar to and intermixed with the OHV enthusiast's expenditures. Although those who recreate at the dunes by hiking and backpacking would be expected have less expenditures, this is believed to be a minor number of individuals, so their expenditures were not calculated separately.

All fees collected by BLM, after the cost of collection, stay within Imperial County. (The contractor that collects the fees is based in San Diego.)

The base year of analysis is 1998 for Imperial County and 1997 for Yuma County, but the impacts were adjusted to reflect year 2000 price levels.

Alternative 1 is the same as the baseline condition for comparative analysis.

Although an initial decrease in visitor use could occur for all the action alternatives (Alternatives 2, 3, and 4), the demand for recreational opportunities at the ISDRA is anticipated to increase; and visitor use is expected to increase commensurately as a result of decreasing OHV recreational opportunities at other desert Southwest sites.

For purposes of this analysis, an alternative would have an adverse impact on the economy if it would:

Cause a temporary or permanent reduction in employment that is substantial (greater than 5 percent) in relation to the existing employment levels

Result in a decline in total local earnings in the area by 5 percent or more

Compliance with NEPA:

In *Morris v. Meyers* the courts determined that "NEPA was not intended to provide a process for addressing social and economic shortcomings in our society, but to ensure that agencies consider the consequences of their actions on the land, air, water, and other natural resources upon which society depends. Social and economic consequences of agency action may be considered under NEPA only if they are caused by damage to the physical environment."

During the public comment period for the draft EIS, many commentators requested that BLM conduct an extensive study on the social economics of OHV use at the ISDRA. BLM has not conducted a study on the social economics of OHV use at the ISDRA for this EIS as it is outside the scope of the project. This type of study is also not required under NEPA for this project, as any social economic shortcomings would not be caused by damage to the physical environment. However, the social and economic issues are more thoroughly addressed in the final EIS than in the draft EIS.

Data

Two data sources were used to derive the total trip expenditures by expenditure category. Total number of visits per year to the ISDRA under each alternative was developed from available survey data. A “trip” equates to a 3-day stay at the Dunes and is assumed to be equivalent to the number of visits provided in Table 4.1-1. Trip expenditure data came from the California Department of Parks and Recreation’s Off-Highway Vehicle study. Table 4.5-1 shows the total number of trips under baseline condition and each of the alternatives, while Table 4.5-2 shows the household trip expenditures by expenditure type.

Table 4.5-1 Estimated Visitor Use and Origination

Alternatives	Estimated Number of Visits	Number of Households ^a	Resident (Imperial) Households	Nonresident Households ^b	
				California ^c	Arizona ^d
Baseline Condition	867,753	289,251	28,925	223,880	36,446
All Alternatives – 2002-2003	1,005,000	335,000	301,500	259,290	42,210
2012-2013 Season: Low Estimate					
Alternatives 1, 2, 3 and 4	1,418,000	472,667	425,400	365,844	59,556
2012-2013 Season: High Estimate					
Alternative 1	2,071,000	690,333	621,300	534,318	86,982
Alternative 2	1,637,000	545,667	491,100	422,346	68,754
Alternative 3	1,488,000	496,000	446,400	383,904	62,496
Alternative 4	1,800,000	600,000	540,000	464,400	75,600

Source: BLM, 2001

^a Based on the assumption of three persons per household

^b Households that are not residents of Imperial County (90% of households)

^c California households outside Imperial County (86% of nonresident households)

^d Arizona households account for 14% of nonresident households visiting ISDRA and spend about 10% of their trip related expenditures in Imperial County.

Table 4.5-2 Household Trip Expenditures

Expenditure Type	Household Trip Expenditure (Lower Bound) ^c in 1998 \$	Household Trip Expenditure (Upper Bound) ^d in 1998 \$
Food & Beverage	95.27	317.58
Medical	11.68	23.36
Supplies and Services	128.45	256.9
Transportation	24.58	49.16
TOTAL	259.98	647.00

To perform a sensitivity analysis, two estimates were used for each of the categories. The first estimate is the mean household trip expenditures, while the second estimate represents a lower bound on trip expenditures. The lower bound is assumed to represent the estimated portion of the expenditures spent within the local economy. For this study, the following proportions were applied to the trip expenditures to derive the estimates that remain in the local economy under each expenditure category: 30 percent of food expenditures and 50 percent of the expenditures on gas, medical services, and supplies and services. The preceding proportions represent the local contribution and are partially based on estimates developed by Clawson and Knetch (1966) for economies of rural recreational sites near federal reserves. In the case of the lodging category, total fees that BLM collected were used instead of the estimates from the OHV study. BLM collected \$657,578 in total fees in 2000. This translates to \$616,007 in 1998 dollars. Yuma County in Arizona serves as a starting point for some of the visitors to the ISDRA as well as the route from other parts of Arizona. As such, there are a number of small towns whose business communities are highly dependent on recreational activities in the ISDRA. Any changes in the number and frequency of visitors to the ISDRA are likely to impact these towns. Because Yuma County has a high unemployment rate (27.5 percent in 2000), any alternative that reduces the number of visitors will likely raise the unemployment rate. Assuming that Arizona residents visiting the ISDRA spend approximately 30 percent of their trip expenditures in Yuma County, the following trip expenditures were developed under each of the management alternatives. As with the estimates developed for Imperial County, the low ends represent estimates expected to stay within the local area (i.e., Yuma County).

The estimated total trip expenditures (lower and upper bound) associated with each of the action alternatives (as well as the baseline condition) for Imperial and Yuma County are presented in Tables 4.5-3 and 4.5-4. The estimated total trip expenditures were used to analyze the effects on the economies of the two counties. An IMPLAN (Impact Analysis for Planning) regional input-output model was constructed for each of the two counties. IMPLAN is an input-output modeling and software package that allows the modeler to build economic models of regions for impact analysis purposes.

Table 4.5-3 Total Household Trip Expenditures by Expenditure Type, Imperial County^a (Million 1998 \$)

Expenditure Type	Baseline	Alternatives					
		2002-2003 Visitor Estimate	2012-2013 Low Visitor Estimate	2012-2013 High Visitor Estimates			
		All Alternatives 2002-2003	All Alternatives	Alternative 1	Alternative 2	Alternative 3	Alternative 4
<i>Lower Bound</i>							
Fees	0.62	0.71	1.01	1.47	1.16	1.06	1.28
Food & Beverage	21.68	25.11	106.27	51.73	40.89	37.17	44.97
Medical	2.66	3.08	13.03	6.34	5.01	4.56	5.51
Supplies and Services	29.23	33.85	143.27	69.75	55.13	50.11	60.62
Transportation	5.59	6.48	27.41	13.35	10.55	9.59	11.60
TOTAL	59.77	69.22	290.99	142.64	112.75	102.49	123.98
<i>Upper Bound</i>							
Fees	0.62	0.71	1.01	1.47	1.16	1.06	1.28
Food & Beverage	72.26	83.69	354.22	172.45	136.31	123.90	149.88
Medical	5.32	6.16	26.06	12.69	10.03	9.12	11.03
Supplies and Services	58.45	67.70	286.54	139.50	110.27	100.23	121.24
Transportation	11.18	12.95	54.83	26.69	21.10	19.18	23.20
TOTAL	147.82	171.20	722.66	352.80	278.87	253.48	306.63

Source: California Department of Parks and Recreation, 1997; BLM, 2001.

Numbers may not add up due to independent rounding.

^a Imperial County receives all of the expenditures by California residents and 10% of the expenditures by Arizona residents.

Table 4.5-4 Total Household Trip Expenditures by Expenditure Type, Yuma County^a (Million 1997 \$)

Expenditure Type	Baseline	Alternatives					
		2002-2003 Visitor Estimate	2012-2013 Low Visitor Estimate	2012-2013 High Visitor Estimates			
		All Alternatives 2002-2003	All Alternatives	Alternative 1	Alternative 2	Alternative 3	Alternative 4
<i>Lower Bound</i>							
Food & Beverage	1.03	1.19	5.03	2.45	1.93	1.76	2.13
Medical	0.13	0.15	0.62	0.30	0.24	0.22	0.26
Supplies and Services	1.38	1.60	6.78	3.30	2.61	2.37	2.87
Transportation	0.26	0.31	1.30	0.63	0.50	0.45	0.55
TOTAL	2.80	3.24	13.72	6.68	5.28	4.80	5.81
<i>Upper Bound</i>							
Food & Beverage	3.42	3.96	16.76	8.16	6.45	5.86	7.09
Medical	0.25	0.29	1.23	0.60	0.47	0.43	0.52
Supplies and Services	2.77	3.20	13.56	6.60	5.22	4.74	5.74
Transportation	0.53	0.61	2.59	1.26	1.00	0.91	1.10
TOTAL	6.97	8.07	34.15	16.62	13.14	11.94	14.55

Source: California Department of Parks and Recreation, 1997; BLM, 2001.

Numbers may not add up due to independent rounding.

^a Yuma County receives 30% of the expenditures by Arizona residents.

Impacts

Alternative 1

Imperial County

Estimated trip expenditures at the ISDRA would range from \$59.8 million to \$147.8 million. Table 4.5-5 shows estimated total household trip expenditures by expenditure types under the baseline condition. The estimates form the basis of the economic impact analysis.

Table 4.5-5 Total Estimated Household Trip Expenditures
by Expenditure Type under Baseline Condition, in 1998 Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Lodging	0.62	0.62
Food and Beverage	21.68	72.26
Medical	2.66	5.32
Supplies and Services	29.23	58.45
Transportation	5.59	11.18
TOTAL	59.77	147.82

Source: BLM, 2001j; California Department of Parks and Recreation, 1997.

Numbers may not add up due to independent rounding.

The ISDRA would contribute 1,214 to 3,264 in jobs through direct employment and between \$23.8 million and \$56.1 million in direct personal income to the Imperial County economy. In addition to the direct economic impacts of visitor expenditures, ISDRA also contributes to the economic well being of Imperial County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 121 to 304 jobs through indirect employment in the region and between 165 and 410 jobs through induced employment.

Visitor expenditures also generate between \$3.6 million and \$8.5 million in indirect personal income to the region, and between \$4.1 million and \$9.7 million in induced personal income. Table 4.5-6 shows the estimates of direct, indirect, and induced employment and income under the baseline condition.

Employment impacts of the ISDRA under the baseline condition represent between 3 and 8 percent of the total regional employment of 49,800. Total personal income, on the other hand, represents about 1 percent of the total regional personal income (here derived as per capita income of \$17,550 multiplied by the Census 2000 population estimate for Imperial County of 142,361).

Table 4.5-6 Estimates of Direct, Indirect, and Induced Impacts under the Baseline Condition

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	1,214	3,264
Indirect	121	304
Induced	165	410
Total Employment	1,500	3,978
Personal Income		
Direct	\$23.81 million	\$56.13 million
Indirect	\$3.58 million	\$8.54 million
Induced	\$4.08 million	\$9.65 million
Total Income	\$31.48 million	\$74.32 million

Income estimates are in 2000 dollars.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the housing vacancy rate in the county is high (10.3 percent), no adverse impacts to the local population regarding population or housing are expected under the baseline condition.

Yuma County

Under this alternative, the estimated trip expenditures range from \$2.8 million to about \$6.0 million. Table 4.5-7 shows estimated total household trip expenditures by expenditure types for the baseline condition.

Table 4.5-7 Total Estimated Household Trip Expenditures by Expenditure Type under the Baseline Condition, in 1997 Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Food and Beverage	1.03	3.42
Medical	0.13	0.25
Supplies and Services	1.38	2.77
Transportation	0.26	0.53
TOTAL	2.80	6.97

Source: BLM, 2001; California Department of Parks and Recreation, 1997.

Numbers may not add up due to independent rounding.

The ISDRA would contribute 58 to 158 jobs through direct employment and between \$1.0 million and \$2.4 million in direct personal income to the Yuma County economy. In addition to the direct economic impacts of visitor expenditures, the ISDRA also contributes to the economic well being of Yuma County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 10 to 24 jobs through indirect employment in the region and between 9 and 23 jobs through induced employment.

The visitor expenditures also generate between \$0.2 million and \$0.6 million in indirect personal income to the region, and between \$0.2 million and \$0.5 million in induced personal income. Table 4.5-8 shows the estimates of direct, indirect, and induced employment and income under the baseline condition.

Table 4.5-8 Estimates of Direct, Indirect, and Induced Impacts under the Baseline Condition

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	58	158
Indirect	10	24
Induced	9	23
Total Employment	76	205
Personal Income		
Direct	\$0.98 million	\$2.44 million
Indirect	\$0.23 million	\$0.57 million
Induced	\$0.19 million	\$0.48 million
Total Income	\$1.40 million	\$3.49 million

Income estimates are in 2000 dollars.

The employment impacts of the ISDRA under the baseline condition represent between 0.2 and 0.4 percent of the total regional employment of 47,600. Total personal income, on the other hand, represents between zero and 0.1 percent of total regional personal income (here derived as per-capita income of \$18,452 multiplied by the Census 2000 population estimate for Yuma County of 160,026).

All Action Alternatives: 2002-2003 Visitor Estimates Imperial County

Under this alternative, estimated trip expenditures range from \$69.2 million to \$171.1 million. Table 4.5-9 shows estimated total household trip expenditures by expenditure types for the action alternatives using the 2002-2003 estimates of visitor use.

The ISDRA would contribute 1,406 to 3,780 jobs through direct employment and between \$27.6 million and \$68.2 million in direct personal income to the Imperial County economy. In addition to the direct economic impacts of visitor expenditures, ISDRA would also contribute to the economic well being of Imperial County through secondary economic

impacts (indirect and induced impacts). Visitor expenditures result in 140 to 353 jobs through indirect employment in the region and between 191 and 475 jobs through induced employment.

Table 4.5-9 Total Estimated Household Trip Expenditures by Expenditure Type under all action Alternatives, 2002-2003 visitor estimates, in 1998 Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Lodging	0.71	0.71
Food and Beverage	25.11	83.69
Medical	3.08	6.16
Supplies and Services	33.85	67.70
Transportation	6.48	12.95
TOTAL	69.22	171.20

Source: BLM, 2001; California Department of Parks and Recreation, 1997.

Numbers may not add up due to independent rounding.

The visitor expenditures would also generate between \$4.2 million and \$10.5 million in indirect personal income to the region, and between \$4.7 million and \$11.7 million in induced personal income. Table 4.5-10 shows the estimates of direct, indirect, and induced employment and income under the action alternatives using the 2002-2003 estimates of visitor use.

Table 4.5-10 Estimates of Direct, Indirect, and Induced Impacts under all Action Alternatives, 2002-2003 Visitor Use Estimates

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	1,406	3,780
Indirect	140	353
Induced	191	475
Total Employment	1,737	4,607
Personal Income		
Direct	\$27.6 million	\$68.2 million
Indirect	\$4.2 million	\$10.5 million
Induced	\$4.7 million	\$11.7 million
Total Personal Income	\$336.5 million	\$90.3 million

Income estimates are in 2000 dollars.

Total employment impacts of the ISDRA under all action alternatives represent between 3 and 9 percent of the total regional employment of 49,800. Total personal income, on the other hand, represent between 3 and 4 percent of total regional personal income. The anticipated increase in regional employment and income in Imperial County, compared to the baseline conditions, represents a beneficial impact.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the competition for local housing, local jobs and local sources of income between the recreational users of ISDRA and the local population under all the action alternatives (using the 2002-2003 visitor use estimates) are negligible, no adverse impacts on population or housing are expected. In addition, all alternatives project an increasing visitor supply, which could provide additional employment for the local population.

Yuma County

Under this alternative, the estimated trip expenditures range from \$3.2 million to \$8.1 million. Table 4.5-11 shows estimated total household trip expenditures by expenditure types for the action alternatives using the 2002-2003 visitor use estimates.

Table 4.5-11 Total Estimated Household Trip Expenditures by Expenditure Type, Yuma County in 1997 Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Food and Beverage	1.19	3.96
Medical	0.15	0.29
Supplies and Services	1.60	3.20
Transportation	0.31	0.61
TOTAL	3.24	8.07

Source: BLM, 2001; California Department of Parks and Recreation, 1997.
Numbers may not add up due to independent rounding.

The ISDRA would contribute 67 to 183 jobs through direct employment and between \$1.1 million and \$2.8 million in direct personal income to the Yuma County economy. In addition to the direct economic impacts of visitor expenditures, the ISDRA would also contribute to the economic well being of Yuma County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 11 to 28 jobs through indirect employment in the region and between 10 and 26 jobs through induced employment.

The visitor expenditures also generate between \$0.3 million and \$0.7 million in indirect personal income to the region, and between \$0.2 million and \$0.6 million in induced personal income. Table 4.5-12 shows the estimates of direct, indirect, and induced employment and income under the action alternatives using the 2002-2003 visitor use estimates.

Table 4.5-12 Estimates of Direct, Indirect, and Induced Impacts under All Action Alternatives, 2002-2003 Visitor Use Estimates

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	67	183
Indirect	11	28
Induced	10	26
Total Employment	88	237
Personal Income		
Direct	\$1.13 million	\$2.82 million
Indirect	\$0.26 million	\$0.67 million
Induced	\$0.22 million	\$0.56 million
Total Personal Income	\$1.62 million	\$4.05 million

Income estimates are in 2000 dollars

The employment impacts of the ISDRA under the Recreation Resource Alternative represent between 0.2 and 0.5 percent of the total regional employment of 47,600. Total personal income, on the other hand, represents 0.1 percent of total regional personal income under both the high and low expenditure estimates. Therefore, a negligible to beneficial impact on regional employment and income in Yuma County is anticipated.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the competition for local housing, local jobs and local sources of income between the recreational users of ISDRA and the local population under all the action alternatives (using the 2002-2003 visitor use estimates) are negligible, no adverse impacts on population or housing are expected. In addition, all alternatives project an increasing visitor supply, which could provide additional employment for the local population.

All Action Alternatives: Low 2012-2013 Visitor Use Estimates Imperial County

Under this alternative, estimated trip expenditures range from \$97.7 million to \$241.6 million. Table 4.5-13 shows estimated total household trip expenditures by expenditure types for all the action Alternatives using low 2012-2013 visitor use estimate.

Table 4.5-13 Total Estimated Household Trip Expenditures by Expenditure Type under all Alternatives, Low 2012-2013 Visitor Use Estimate, 1998 Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Lodging	1.01	1.01
Food and Beverage	35.42	118.07
Medical	4.34	8.69
Supplies and Services	47.76	95.51
Transportation	9.14	18.28
TOTAL	97.67	241.56

Source: BLM, 2001; California Department of Parks and Recreation, 1997.
Numbers may not add up due to independent rounding.

The ISDRA would contribute 1,984 to 5,334 jobs through direct employment and between \$38.9 million and \$96.2 million in direct personal income to the Imperial County economy. In addition to the direct economic impacts of visitor expenditures, the ISDRA would also contribute to the economic well being of Imperial County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 197 to 498 jobs through indirect employment in the region and between 270 and 670 jobs through induced employment.

The visitor expenditures would also generate between \$5.9 million and \$14.8 million in indirect personal income to the region, and between \$6.7 million and \$16.5 million in induced personal income. Table 4.5-14 shows the estimates of direct, indirect, and induced employment and income under all action alternatives and using low 2012-2013 visitor use estimates.

Total employment impacts of the ISDRA under the action alternatives represent between 5 and 13 percent of the total regional employment of 49,800. Total personal income, on the other hand, represents between 2 and 5 percent of total regional personal income. The anticipated increase in regional employment and income in Imperial County under the action alternatives, compared to existing conditions, represents a beneficial impact.

Table 4.5-14 Estimates of Direct, Indirect, and Induced Impacts under All Action Alternatives, 2012-2013 Low Visitor Use Estimates

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	1,984	5,334
Indirect	197	498
Induced	270	670
Total Employment	2,450	6,501
Personal Income		
Direct	\$38.91 million	\$96.15 million
Indirect	\$5.85 million	\$14.76 million
Induced	\$6.67 million	\$16.55 million
Total Personal Income	\$51.43 million	\$127.46 million

Income estimates are in 2000 dollars.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the competition for local housing, local jobs and local sources of income between the recreational users of ISDRA and the local population under all the action alternatives (using the 2002-2003 visitor use estimates) are negligible, no adverse impacts on population or housing are expected. In addition, all alternatives project an increasing visitor supply, which could provide additional employment for the local population.

Yuma County

Under this alternative, the estimated trip expenditures range from \$4.6 million to \$11.4 million. Table 4.5-15 shows estimated total household trip expenditures by expenditure types for all the action alternatives using low 2012-2013 visitor use estimate.

Table 4.5-15 Total Estimated Household Trip Expenditures by Expenditure Type under All Action Alternatives, Low 2012-2013 Visitor Use Estimate, 1997 Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Food and Beverage	1.68	5.59
Medical	0.21	0.41
Supplies and Services	2.26	4.52
Transportation	0.43	0.86
TOTAL	4.57	11.38

Source: BLM, 2001; California Department of Parks and Recreation, 1997.
Numbers may not add up due to independent rounding.

The ISDRA would contribute 94 to 258 jobs through direct employment and between \$1.60 million and \$3.99 million in direct personal income to the Yuma County economy. In addition to the direct economic impacts of visitor expenditures, the ISDRA would also contribute to the economic well being of Yuma County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 15 to 39 jobs through indirect employment in the region and between 15 and 37 jobs through induced employment.

The visitor expenditures also generate between \$0.4 million and \$0.9 million in indirect personal income to the region, and between \$0.3 million and \$0.8 million in induced personal income. Table 4.5-16 shows the estimates of direct, indirect, and induced employment and income under all the action alternatives using low 2012-2013 visitor use estimate.

Table 4.5-16 Estimates of Direct, Indirect, and Induced Impacts under All Action Alternatives, Low 2012-2013 Visitor Use Estimate

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	94	258
Indirect	15	39
Induced	15	37
Total Employment	124	334
Personal Income		
Direct	\$1.60 million	\$3.99 million
Indirect	\$0.37 million	\$0.94 million
Induced	\$0.31 million	\$0.79 million
Total Personal Income	\$2.28 million	\$5.71 million

Income estimates are in 2000 dollars.

Total employment impacts of the ISDRA under this alternative represent between 0.3 and 0.7 percent of the total regional employment of 47,600. Total personal income, on the other hand, represents between 0.1 and 0.2 percent of total regional personal income. Thus, this alternative would have a negligible to beneficial impact on regional employment and income in Yuma County.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the competition for local housing, local jobs and local sources of income between the recreational users of ISDRA and the local population under all the action alternatives (using the 2002-2003 visitor use estimates) are negligible, no adverse impacts on population or housing are expected. In addition, all alternatives project an increasing visitor supply, which could provide additional employment for the local population.

Alternative 1: High 2012-2013 Visitor Use Estimate Imperial County

Estimated trip expenditures range from \$142.6 million to \$352.8 million. Table 4.5-17 shows estimated total household trip expenditures by expenditure types for Alternative 1 using high 2012-2013 visitor use estimates.

The ISDRA would contribute 2,897 to 7,790 jobs through direct employment and between \$56.8 million and \$140.4 million in direct personal income to the Imperial County economy. In addition to the direct economic impacts of visitor expenditures, ISDRA would also contribute to the economic well being of Imperial County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 287 to 727 jobs through indirect employment in the region and between 394 and 978 jobs through induced employment.

Table 4.5-17 Total Estimated Household Trip Expenditures by Expenditure Type under Alternative 1 with High 2012-2013 Visitor Use Estimates, 1998 Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Lodging	1.47	1.47
Food and Beverage	51.73	172.45
Medical	6.34	12.69
Supplies and Services	69.75	139.50
Transportation	13.35	26.69
TOTAL	142.64	352.80

Source: BLM, 2001; California Department of Parks and Recreation, 1997.
Numbers may not add up due to independent rounding.

The visitor expenditures would also generate between \$8.6 million and \$21.6 million in indirect personal income to the region, and between \$9.7 million and \$24.2 million in induced personal income. Table 4.5-18 shows the estimates of direct, indirect, and induced employment and income under Alternative 1 with high 2012-2013 visitor use estimates.

Table 4.5-18 Estimates of Direct, Indirect, and Induced Impacts under Alternative 1 with High 2012-2013 Visitor Use Estimates

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	2,897	7,790
Indirect	287	727
Induced	394	978
Total Employment	3,578	9,495
Personal Income		
Direct	\$56.83 million	\$140.43 million
Indirect	\$8.55 million	\$21.56 million
Induced	\$9.74 million	\$24.16 million
Total Personal Income	\$75.12 million	\$186.15 million

Income estimates are in 2000 dollars.

Total employment impacts of the ISDRA under Alternative 1 (high 2012-2013 visitor use estimates) represent between 7 and 19 percent of the total regional employment of 49,800. Total personal income, on the other hand, represents between 3 and 7 percent of total regional personal income. The anticipated increase in regional employment and income in Imperial County under this alternative represents a beneficial impact relative to existing conditions.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the competition for local housing, local jobs and local sources of income between the recreational users of ISDRA and the local population under all the action alternatives (using the 2002-2003 visitor use estimates) are negligible, no adverse impacts on population or housing are expected. In addition, this alternative projects the highest increase in visitor supply, which could provide the greatest additional employment for the local population.

Yuma County

Under Alternative 1 (high 2012-2013 visitor use estimates), the estimated trip expenditures range from \$6.7 million to \$16.6 million. Table 4.5-19 shows estimated total household trip expenditures by expenditure types for Alternative 1 using high 2012-2013 visitor use estimates.

Table 4.5-19 Total Estimated Household Trip Expenditures by Expenditure Type under Alternative 1 with High 2012-2013 Visitor Use Estimates, 1997 Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Food and Beverage	2.45	8.16
Medical	0.30	0.60
Supplies and Services	3.30	6.60
Transportation	0.63	1.26
TOTAL	6.68	16.62

Source: BLM, 2001; California Department of Parks and Recreation, 1997.

Numbers may not add up due to independent rounding.

The ISDRA would contribute 137 to 377 jobs through direct employment and between \$2.3 million and \$5.8 million in direct personal income to the Yuma County economy. In addition to the direct economic impacts of visitor expenditures, ISDRA would also contribute to the economic well being of Yuma County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 23 to 57 jobs through indirect employment in the region and between 21 and 54 jobs through induced employment.

The visitor expenditures also generate between \$0.5 million and \$1.4 million in indirect personal income to the region, and between \$0.5 million and \$1.2 million in induced personal income. Table 4.5-20 shows the estimates of direct, indirect, and induced employment and income under Alternative 1 with high 2012-2013 visitor use estimates.

Table 4.5-20 Estimates of Direct, Indirect, and Induced Impacts under Alternative 1 with High 2012-2013 Visitor Use Estimates

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	137	377
Indirect	23	57
Induced	21	54
Total Employment	181	488
Personal Income		
Direct	\$2.33 million	\$5.82 million
Indirect	\$0.54 million	\$1.37 million
Induced	\$0.46 million	\$1.15 million
Total Personal Income	\$3.33 million	\$8.34 million

Income estimates are in 2000 dollars.

Total employment impacts of the ISDRA under Alternative 1 (high 2012-2013 visitor use estimates) represent between 0.4 and 1.0 percent of the total regional employment of 47,600. Total personal income, on the other hand, represents between 0.1 and 0.3 percent of total regional personal income. Thus, this alternative would have a negligible to beneficial impact on regional employment and income in Yuma County.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the competition for local housing, local jobs and local sources of income between the recreational users of ISDRA and the local population under all the action alternatives (using the 2002-2003 visitor use estimates) are negligible, no adverse impacts on population or housing are expected. In addition, this alternative projects the highest visitor supply, which could provide the greatest additional employment for the local population.

Alternative 2: High 2012-2013 Visitor Use Estimate **Imperial County**

Estimated trip expenditures range from \$112.8 million to \$278.9 million. Table 4.5-21 shows estimated total household trip expenditures by expenditure types for Alternative 2 using high 2012-2013 visitor use estimates.

The ISDRA would contribute 2,290 to 6,158 jobs through direct employment and between \$44.9 million and \$111.0 million in direct personal income to the Imperial County economy. In addition to the direct economic impacts of visitor expenditures, ISDRA would also contribute to the economic well being of Imperial County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 227 to 574 jobs through indirect employment in the region and between 312 and 773 jobs through induced employment.

Table 4.5-21 Total Estimated Household Trip Expenditures by Expenditure Type under Alternative 2 with High 2012-2013 Visitor Use Estimates, 1998 Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Lodging	1.16	1.16
Food and Beverage	40.89	136.31
Medical	5.01	10.03
Supplies and Services	55.13	110.27
Transportation	10.55	21.10
TOTAL	112.75	278.87

Source: BLM, 2001; California Department of Parks and Recreation, 1997.
Numbers may not add up due to independent rounding.

The visitor expenditures would also generate between \$6.8 million and \$17.0 million in indirect personal income to the region, and between \$7.7 million and \$19.1 million in induced personal income. Table 4.5-22 shows the estimates of direct, indirect, and induced employment and income under Alternative 2 with high 2012-2013 visitor use estimates.

Table 4.5-22 Estimates of Direct, Indirect, and Induced Impacts under Alternative 2 with High 2012-2013 Visitor Use Estimates

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	2,290	6,158
Indirect	227	574
Induced	312	773
Total Employment	2,829	7,505
Personal Income		
Direct	\$44.92 million	\$111.00 million
Indirect	\$6.75 million	\$17.04 million
Induced	\$7.70 million	\$19.10 million
Total Personal Income	\$59.38 million	\$147.14 million

Income estimates are in 2000 dollars.

Total employment impacts of the ISDRA under Alternative 2 (high 2012-2013 visitor use estimates) represent between 6 and 15 percent of the total regional employment of 49,800. Total personal income, on the other hand, represents between 2 and 6 percent of total regional personal income. The anticipated increase in regional employment and income in Imperial County under this alternative represents a beneficial impact relative to existing conditions.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the competition for local housing, local jobs and local sources of income between the recreational users of ISDRA and the local population under all the action alternatives (using the 2002-2003 visitor use estimates) are negligible, no adverse impacts on population or housing are expected. In addition, Alternative 2 projects an increasing visitor supply, which could provide additional employment for the local population, although this increase would not be as great as Alternatives 1 and 4. However, it would be greater than alternative 3.

Yuma County

Under Alternative 2 (high 2012-2013 visitor use estimates), the estimated trip expenditures range from \$5.3 million to \$13.1 million. Table 4.5-23 shows estimated total household trip expenditures by expenditure types for Alternative 2 using high 2012-2013 visitor use estimates.

Table 4.5-23 Total Estimated Household Trip Expenditures by Expenditure Type under Alternative 2 with High 2012-2013 Visitor Use Estimates, 1997 Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Food and Beverage	1.93	6.45
Medical	0.24	0.47
Supplies and Services	2.61	5.22
Transportation	0.50	1.00
TOTAL	5.28	13.14

Source: BLM, 2001; California Department of Parks and Recreation, 1997. Numbers may not add up due to independent rounding.

The ISDRA would contribute 108 to 298 jobs through direct employment and between \$1.8 million and \$4.6 million in direct personal income to the Yuma County economy. In addition to the direct economic impacts of visitor expenditures, ISDRA would also contribute to the economic well being of Yuma County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 18 to 45 jobs through indirect employment in the region and between 17 and 42 jobs through induced employment.

The visitor expenditures also generate between \$0.4 million and \$1.1 million in indirect personal income to the region, and between \$0.4 million and \$0.9 million in induced personal income. Table 4.5-24 shows the estimates of direct, indirect, and induced employment and income under Alternative 2 with high 2012-2013 visitor use estimates.

Table 4.5-24 Estimates of Direct, Indirect, and Induced Impacts under Alternative 2 with High 2012-2013 Visitor Use Estimates

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	108	298
Indirect	18	45
Induced	17	42
Total Employment	143	386
Personal Income		
Direct	\$1.84 million	\$4.60 million
Indirect	\$0.43 million	\$1.08 million
Induced	\$0.36 million	\$0.91 million
Total Personal Income	\$2.63 million	\$6.59 million

Income estimates are in 2000 dollars.

Total employment impacts of the ISDRA under Alternative 2 (high 2012-2013 visitor use estimates) represent between 0.3 and 0.8 percent of the total regional employment of 47,600. Total personal income, on the other hand, represents between 0.1 and 0.2 percent of total regional personal income. Thus, this alternative would have a beneficial impact on regional employment and income in Yuma County.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the competition for local housing, local jobs and local sources of income between the recreational users of ISDRA and the local population under all the action alternatives (using the 2002-2003 visitor use estimates) are negligible, no adverse impacts on population or housing are expected. In addition, Alternative 2 projects an increasing visitor supply, which could provide additional employment for the local population, although this increase would not be as great as Alternatives 1 and 4. However, it would be greater than alternative 3.

Alternative 3: High 2012-2013 Visitor Use Estimate Imperial County

Estimated trip expenditures range from \$102.5 million to \$253.5 million. Table 4.5-25 shows estimated total household trip expenditures by expenditure types for Alternative 3 using high 2012-2013 visitor use estimates.

The ISDRA would contribute 2,081 to 5,597 jobs through direct employment and between \$40.8 million and \$100.9 million in direct personal income to the Imperial County economy. In addition to the direct economic impacts of visitor expenditures, ISDRA would also contribute to the economic well being of Imperial County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 283 to 522 jobs through indirect employment in the region and between 283 and 703 jobs through induced employment.

Table 4.5-25 Total Estimated Household Trip Expenditures by Expenditure Type
under Alternative 3 with High 2012-2013 Visitor Use Estimates, 1998
Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Lodging	1.06	1.06
Food and Beverage	37.17	123.90
Medical	4.56	9.12
Supplies and Services	50.11	100.23
Transportation	9.59	19.18
TOTAL	102.49	253.48

Source: BLM, 2001; California Department of Parks and Recreation, 1997.
Numbers may not add up due to independent rounding.

The visitor expenditures would also generate between \$6.1 million and \$15.5 million in indirect personal income to the region, and between \$7.0 million and \$17.4 million in induced personal income. Table 4.5-26 shows the estimates of direct, indirect, and induced employment and income under Alternative 3 with high 2012-2013 visitor use estimates.

Table 4.5-26 Estimates of Direct, Indirect, and Induced Impacts under Alternative 3 with High 2012-2013 Visitor Use Estimates

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	2,081	5,597
Indirect	207	522
Induced	283	703
Total Employment	2,571	6,822
Personal Income		
Direct	\$40.83 million	\$100.90 million
Indirect	\$6.14 million	\$15.49 million
Induced	\$7.00 million	\$17.36 million
Total Personal Income	\$53.97 million	\$133.75 million

Income estimates are in 2000 dollars.

Total employment impacts of the ISDRA under Alternative 3 (high 2012-2013 visitor estimates) represent between 5 and 14 percent of the total regional employment of 49,800. Total personal income, on the other hand, represents between 2 and 5 percent of total regional personal income. The anticipated increase in regional employment and income in Imperial County under this alternative represents a beneficial impact relative to existing conditions.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the competition for local housing, local jobs and local sources of income between the recreational users of ISDRA and the local population under all the action alternatives (using the 2002-2003 visitor use estimates) are negligible, no adverse impacts on population or housing are expected. In addition, Alternative 3 projects an increasing visitor supply, which could provide additional employment for the local population, although this increase would not be as great as Alternatives 1, 2 and 4.

Yuma County

Under Alternative 3 (high 2012-2013 visitor use estimates), the estimated trip expenditures range from \$4.8 million to \$11.9 million. Table 4.5-27 shows estimated total household trip expenditures by expenditure types for Alternative 3 using high 2012-2013 visitor use estimates.

Table 4.5-27 Total Estimated Household Trip Expenditures by Expenditure Type
under Alternative 3 with High 2012-2013 Visitor Use Estimates, 1997
Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Food and Beverage	1.76	5.86
Medical	0.22	0.43
Supplies and Services	2.37	4.74
Transportation	0.45	0.91
TOTAL	4.80	11.94

Source: BLM, 2001; California Department of Parks and Recreation, 1997.
Numbers may not add up due to independent rounding.

The ISDRA would contribute 99 to 271 jobs through direct employment and between \$1.7 million and \$4.2 million in direct personal income to the Yuma County economy. In addition to the direct economic impacts of visitor expenditures, ISDRA would also contribute to the economic well being of Yuma County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 16 to 41 jobs through indirect employment in the region and between 15 and 39 jobs through induced employment.

The visitor expenditures also generate between \$0.4 million and \$1.0 million in indirect personal income to the region, and between \$0.3 million and \$0.8 million in induced personal income. Table 4.5-28 shows the estimates of direct, indirect, and induced employment and income under Alternative 3 with high 2012-2013 visitor use estimates.

Table 4.5-28 Estimates of Direct, Indirect, and Induced Impacts
under Alternative 3 with High 2012-2013 Visitor Use Estimates

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	99	271
Indirect	16	41
Induced	15	39
Total Employment	130	351
Personal Income		
Direct	\$1.68 million	\$4.18 million
Indirect	\$0.39 million	\$0.98 million
Induced	\$0.33 million	\$0.83 million
Total Personal Income	\$2.39 million	\$5.99 million

Income estimates are in 2000 dollars.

Total employment impacts of the ISDRA under Alternative 3 (high 2012-2013 visitor use estimates) represent between 0.3 and 0.7 percent of the total regional employment of 47,600. Total personal income, on the other hand, represents between 0.1 and 0.2 percent of total regional personal income. Thus, this alternative would have a negligible to beneficial impact on regional employment and income in Yuma County.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the competition for local housing, local jobs and local sources of income between the recreational users of ISDRA and the local population under all the action alternatives (using the 2002-2003 visitor use estimates) are negligible, no adverse impacts on population or housing are expected. In addition, Alternative 3 projects an increasing visitor supply, which could provide additional employment for the local population, although this increase would not be as great as Alternatives 1, 2 and 4.

Alternative 4: High 2012-2013 Visitor Use Estimate Imperial County

Estimated trip expenditures range from \$124.0 million to \$306.6 million. Table 4.5-29 shows estimated total household trip expenditures by expenditure types for Alternative 4 using high 2012-2013 visitor use estimates.

The ISDRA would contribute 2,518 to 6,771 jobs through direct employment and between \$49.4 million and \$122.1 million in direct personal income to the Imperial County economy. In addition to the direct economic impacts of visitor expenditures, ISDRA would also contribute to the economic well being of Imperial County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 250 to 632 jobs through indirect employment in the region and between 343 and 850 jobs through induced employment.

Table 4.5-29 Total Estimated Household Trip Expenditures by
Expenditure Type
under Alternative 4 with High 2012-2013 Visitor Use Estimates, 1998
Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Lodging	1.28	1.28
Food and Beverage	44.97	149.88
Medical	5.51	11.03
Supplies and Services	60.62	121.24
Transportation	11.60	23.20
TOTAL	123.98	306.63

Source: BLM, 2001; California Department of Parks and Recreation, 1997.

Numbers may not add up due to independent rounding.

The visitor expenditures would also generate between \$7.4 million and \$18.7 million in indirect personal income to the region, and between \$8.5 million and \$21.0 million in induced personal income. Table 4.5-30 shows the estimates of direct, indirect, and induced employment and income under Alternative 4 with high 2012-2013 visitor use estimates.

Table 4.5-30 Estimates of Direct, Indirect, and Induced Impacts under Alternative 4 with High 2012-2013 Visitor Use Estimates

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	2,581	6,771
Indirect	250	632
Induced	343	850
Total Employment	3,111	8,252
Personal Income		
Direct	\$49.39 million	\$122.05 million
Indirect	\$7.43 million	\$18.74 million
Induced	\$8.47 million	\$21.00 million
Total Personal Income	\$65.29 million	\$161.79 million

Income estimates are in 2000 dollars.

Total employment impacts of the ISDRA under Alternative 4 (high 2012-2013 visitor use estimates) represent between 6 and 17 percent of the total regional employment of 49,800. Total personal income, on the other hand, represents between 3 and 6 percent of total regional personal income. The anticipated increase in regional employment and income in Imperial County under this alternative represents a beneficial impact relative to existing conditions.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the competition for local housing, local jobs and local sources of income between the recreational users of ISDRA and the local population under all the action alternatives (using the 2002-2003 visitor use estimates) are negligible, no adverse impacts on population or housing are expected. In addition, Alternative 4 projects an increasing visitor supply, which could provide additional employment for the local population. This increase would be greater than Alternatives 2 and 3, but not as much as Alternative 1.

Yuma County

Under Alternative 4 (high 2012-2013 visitor use estimates), the estimated trip expenditures range from \$5.8 million to \$14.5 million. Table 4.5-31 shows estimated total household trip expenditures by expenditure types for Alternative 4 using high 2012-2013 visitor use estimates.

Table 4.5-31 Total Estimated Household Trip Expenditures by Expenditure Type under Alternative 4 with High 2012-2013 Visitor Use Estimates, 1997 Dollars

Expenditure Type	Total Household Trip Expenditures (Lower Bound) in Millions \$	Total Household Trip Expenditures (Upper Bound) in Millions \$
Food and Beverage	2.13	7.09
Medical	0.26	0.52
Supplies and Services	2.87	5.74
Transportation	0.55	1.10
TOTAL	5.81	14.45

Source: BLM, 2001; California Department of Parks and Recreation, 1997.

Numbers may not add up due to independent rounding.

The ISDRA would contribute 119 to 328 jobs through direct employment and between \$2.0 million and \$5.1 million in direct personal income to the Yuma County economy. In addition to the direct economic impacts of visitor expenditures, ISDRA would also contribute to the economic well being of Yuma County through secondary economic impacts (indirect and induced impacts). Visitor expenditures result in 20 to 50 jobs through indirect employment in the region and between 19 and 47 jobs through induced employment.

The visitor expenditures also generate between \$0.5 million and \$1.2 million in indirect personal income to the region, and between \$0.4 million and \$1.0 million in induced personal income. Table 4.5-32 shows the estimates of direct, indirect, and induced employment and income under Alternative 4 with high 2012-2013 visitor use estimates.

table 4.5-32 Estimates of Direct, Indirect, and Induced Impacts under Alternative 4 with High 2012-2013 Visitor Use Estimates

	Low Expenditure Estimates	High Expenditure Estimates
Employment		
Direct	119	328
Indirect	20	50
Induced	19	47
Total Employment	157	424
Personal Income		
Direct	\$2.03 million	\$5.06 million
Indirect	\$0.47 million	\$1.19 million
Induced	\$0.40 million	\$1.10 million
Total Personal Income	\$2.90 million	\$7.25 million

Income estimates are in 2000 dollars.

Total employment impacts of the ISDRA under Alternative 4 (high 2012-2013 visitor use estimates) represent between 0.3 and 0.9 percent of the total regional employment of 47,600. Total personal income, on the other hand, represents between 0.1 and 0.3 percent of total regional personal income. Thus, this alternative would have a negligible to beneficial impact on regional employment and income in Yuma County.

Because most of the visitors to the ISDRA are temporary visitors (not moving into the area) and the competition for local housing, local jobs and local sources of income between the recreational users of ISDRA and the local population under all the action alternatives (using the 2002-2003 visitor use estimates) are negligible, no adverse impacts on population or housing are expected. In addition, Alternative 4 projects an increasing visitor supply, which could provide additional employment for the local population. This increase would be greater than Alternatives 2 and 3, but not as much as Alternative 1.

Summary of Impacts

Alternative 1 (high 2012-2013 visitor use estimates) results in the highest socioeconomic benefits in terms of employment and personal income because it is the alternative that results in the highest number of visits. Tables 4.5-33 through 4.5-36 summarize the employment and personal income impacts for Imperial and Yuma Counties. As discussed in the introduction to this section and in Section 3.1 and 4.1, Recreation, it is important to note that much of the economic activity associated with Alternative 1 is attributable to increased visitor use on six major holiday weekends. The increased revenues of Alternative 1 (in comparison to the other alternatives) must be assessed in consideration of the basic premise of lawful activity that defines those action alternatives (Alternatives 2, 3, and 4). None of the alternatives would result in adverse impacts to socioeconomics.

Environmental Justice Analysis

This section was prepared in compliance with Presidential Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898) dated February 11, 1994. The purpose of this section is to determine whether or not disproportionately high and adverse human health or environmental effects would result to minority and/or low-income populations from implementing the proposed alternatives. This analysis focuses on the populations located within the area potentially affected by the alternatives. In accordance with EO 12898, this analysis documents where minority and low-income populations reside and examines where the high and adverse impacts (as reported in the various environmental analysis sections of this EIS) fall relative to these populations. This section also discusses the specific outreach efforts made to involve minority and low-income populations in the decision making process.

Overview of Executive Order 12898

EO 12898, issued by President Clinton in 1994, requires that “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its

programs, policies, and activities on minority populations and low-income populations....” In his memorandum transmitting EO 12898 to federal agencies, President Clinton further specified that, “each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by the National Environmental Policy Act of 1969.” Guidance on how to implement EO 12898 and conduct an Environmental Justice analysis has been issued by the President’s Council on Environmental Quality (CEQ, 1997).

Table 4.5-33 Estimates of Employment Impacts, Imperial County

Expenditure Type	Baseline	Alternatives					
		2002-2003 Visitor Estimate	2012-2013 Low Visitor Estimate	2012-2013 High Visitor Estimates			
		All Alternatives 2002-2003	All Alternatives	Alternative 1	Alternative 2	Alternative 3	Alternative 4
<i>Lower Bound</i>							
Direct	1,214	1,406	1,984	2,897	2,290	2,081	2,518
Indirect	121	140	197	287	227	207	250
Induced	165	191	270	394	312	283	343
Total Employment	1,500	1,737	2,450	3,578	2,829	2,571	3,111
<i>Upper Bound</i>							
Direct	3,264	3,780	5,334	7,790	6,158	5,597	6,771
Indirect	304	353	498	727	574	522	632
Induced	410	475	670	978	773	703	850
Total Employment	3,978	4,607	6,501	9,495	7,505	6,822	8,252

Table 4.5-34 Estimates of Personal Income Impacts, Imperial County (Million 2000 \$)

Expenditure Type	Baseline	Alternatives					
		2002-2003 Visitor Estimate	2012-2013 Low Visitor Estimate	2012-2013 High Visitor Estimates			
		All Alternatives 2002-2003	All Alternatives	Alternative 1	Alternative 2	Alternative 3	Alternative 4
<i>Lower Bound</i>							
Direct	23.8	27.6	38.91	56.8	44.9	40.8	49.4
Indirect	3.6	4.2	5.85	8.6	6.8	6.1	7.4
Induced	4.1	4.7	6.67	9.7	7.7	7.0	8.5
Total Personal Income	31.5	36.5	51.43	75.1	59.4	54.0	65.3
<i>Upper Bound</i>							
Direct	56.1	68.2	96.15	140.4	111.0	100.9	122.1
Indirect	8.5	10.5	14.76	21.6	17.0	15.5	18.7
Induced	9.7	11.7	16.55	24.2	19.1	17.4	21.0
Total Personal Income	74.3	90.3	127.46	186.2	147.1	133.8	161.8

Table 4.5-35 Estimates of Employment Impacts, Yuma County

Expenditure Type	Baseline	Alternatives					
		2002-2003 Visitor Estimate	2012-2013 Low Visitor Estimate	2012-2013 High Visitor Estimates			
		All Alternatives 2002-2003	All Alternatives	Alternative 1	Alternative 2	Alternative 3	Alternative 4
<i>Lower Bound</i>							
Direct	58	67	94	137	108	99	119
Indirect	10	11	15	23	18	16	20
Induced	9	10	15	21	17	15	19
Total Employment	76	88	124	181	143	130	157
<i>Upper Bound</i>							
Direct	158	183	258	377	298	271	328
Indirect	24	28	39	57	45	41	50
Induced	23	26	37	54	42	39	47
Total Employment	205	237	334	488	386	351	424

Table 4.5-36 Estimates of Personal Income Impacts, Yuma County (Million 2000 \$)

Expenditure Type	Baseline	Alternatives					
		2002-2003 Visitor Estimate	2012-2013 Low Visitor Estimate	2012-2013 High Visitor Estimates			
		All Alternatives 2002-2003	All Alternatives	Alternative 1	Alternative 2	Alternative 3	Alternative 4
<i>Lower Bound</i>							
Direct	1.0	1.1	1.6	2.3	1.8	1.7	20.3
Indirect	0.2	0.3	0.4	0.5	0.4	0.4	0.5
Induced	0.2	0.2	0.3	0.5	0.4	0.3	0.4
Total Personal Income	1.4	1.6	2.3	3.3	2.6	2.4	2.9
<i>Upper Bound</i>							
Direct	2.4	2.8	4.0	5.8	4.6	4.2	5.1
Indirect	0.6	0.7	0.9	1.4	1.1	1.0	1.2
Induced	0.5	0.6	0.8	1.2	0.9	0.8	1.0
Total Personal Income	3.5	4.1	5.7	8.3	6.6	6.0	7.3

Studies Performed and Coordination Conducted

Methodology and Approach

The alternatives were evaluated for compliance with EO 12898. For this type of analysis, three fundamental evaluation measures are used.

1. A determination is made as to which impacts of the alternatives are high and adverse.

The series of environmental analyses prepared for the ISDRA RAMP EIS were reviewed, and discussions with the environmental professionals who prepared these sections were conducted to determine which environmental or human health impacts could reach the level of high and adverse after proposed mitigation measures were implemented. Neither EO 12898 nor any of the environmental justice guidance documents contains official guidance on the definition of “high and adverse.” For purposes of this analysis, adverse impacts identified by the professional analysts working on this EIS as “significant” under NEPA were considered to be synonymous with high and adverse impacts as described in EO 12898.

2. A determination is made as to whether minority or low-income populations exist within the high and adverse impact zones.

For information on the distribution of minority and low-income populations in the vicinity of the Plan Area, both 2000 and 1990 census data were used. Race and income data were

reviewed at the finest level available from the census (i.e., Census Block for race, and Census Block Group for income). At the time of this analysis, race data from the 2000 census were available and were reviewed. Income data from the 2000 census were not scheduled to be released until April 2002. In lieu of these newer data, 1990 census data on income were reviewed.

3. The spatial distribution of high and adverse impacts is reviewed to determine if these impacts are likely to fall disproportionately on the minority or low-income population.

Because there is no specific guidance in EO 12898, the test of disproportionality is made on the basis described in the *U.S. Environmental Protection Agency's (EPA) Draft Revised Guidance for Investigating Title VI Administrative Complaints Challenging Permits* (U.S. EPA, June 2000). This guidance suggests using two to three standard deviations above the mean as a quantitative measure of disparate effect.

While the first two elements of this approach were conducted, no detailed distribution analysis was required to make a final determination. This was because professional analysts in each environmental and human health discipline reviewed for this EIS determined that no high and adverse (i.e., NEPA significant) human health or environmental effects were expected to remain after implementation of proposed mitigation measures.

Outreach to Minority and Low-Income Populations

EO 12898 requires federal agencies to ensure effective public participation and access to information. Consequently, a key component of compliance with EO 12898 is outreach to the potentially affected minority and/or low-income population to discover issues of importance that may not otherwise be apparent. Outreach to affected communities was conducted as part of the decision making process.

Impact Analysis

The ISDRA extends from the central to the southeastern region of Imperial County, California. The area encompassed by the recreation area boundary and the areas immediately adjacent to this boundary are largely unpopulated.

Distribution of the Minority Population

Based on the 2000 census, the total population of Imperial County is 142,361. The minority population comprises approximately 80 percent of this total population. Several of the Census Blocks in the vicinity of the ISDRA are above 50 percent minority. These Census Blocks have minority population densities high enough (i.e., greater than 50 percent) to be considered minority populations based on the guidance contained in CEQ (1997).

Distribution of the Low-Income Population

Based on the 1990 census (the most recent census for which income data are available), the total population of Imperial County was 109,303. The low-income population comprised approximately 24 percent of this total population. Unlike the CEQ (1997) guidance on

minority population, none of the environmental justice guidance documents contains a quantitative definition of how many low-income individuals it takes to comprise a low-income population. In the absence of guidance, for this analysis the density used to identify minority populations (i.e., 50 percent or greater) was also used to identify low-income populations. There is one Census Block Group southeast of the ISDRA with 50 percent or more low-income population.

As discussed in the Methodology and Approach section above, for purposes of this analysis, NEPA significant adverse impacts are considered synonymous with high and adverse impacts as described in EO 12898. As reported in the series of environmental analyses prepared for this EIS, and further confirmed through discussions with the environmental professionals who prepared these sections, no significant adverse impacts are expected as a result of implementing the alternatives after proposed mitigation measures are implemented. Consequently, none of the impacts of the vicinity of the Plan Area can be described as high and adverse in the context of EO 12898. Because no high and adverse impacts expected as a result of implementing the alternatives, no high and adverse human health or environmental effects of the alternatives are expected to affect minority or low-income populations disproportionately to the general population. The alternatives are considered to be consistent with the policy established in EO 12898.

Mitigation

None identified.

Cumulative Effects

None identified.

4.6 Land Use and Land Ownership

Introduction

Land use impacts are evaluated in terms of the potential effects of enactment of the alternatives, including the No Action Alternative, on existing and planned land uses in the vicinity of the Plan Area based on the following inconsistency with applicable land use plans and policies and incompatibility with existing land uses in the vicinity of the Plan Area.

Land management practices exercised by the BLM, including those in the Plan Area, must be consistent with the FLPMA, as well as other management guidelines and plans that provide for and direct the avoidance of land use conflicts where ever possible. It is therefore assumed that, per these guidelines, review and approval procedures for specific actions under these alternatives would result in avoidance or reduction of potentially adverse land use impacts.

As described in Chapter 2, all the alternatives with the exception of the No Action Alternative incorporate the designation of eight management areas within the ISDRA, and the one-mile perimeter area surrounding the Recreation Area (the Planning Area). Impacts of the subsequent management measures unique to each of the areas, as they pertain to the individual action alternatives, are described below.

From the point of view of the Purpose and Need of updating a recreation area management plan, it is important to note that rights-of-way and other entitlements relate to recreational activities in two ways. They are either (1) obvious and therefore avoided by OHV enthusiasts (e.g., railroads, roadways, transmission lines) or (2) unobtrusive and therefore with no or minor effects on recreational use (e.g., buried utilities). Therefore, in either case, impacts to recreational uses are negligible.

Impacts

Alternative 1

Under Alternative 1, land use management within the ISDRA would continue to be according to the existing and approved management 1987 *Recreation Area Management Plan*, as well as updated regulations that would constrain full implementation of the 1987 RAMP (e.g., new facilities would not be allowed in the North Algodones Dunes Wilderness Area). The management areas common to the action alternatives would not be designated, and associated management actions would not be pursued. Because current practices would continue, this alternative would change land uses only to the extent dictated by the 1987 RAMP. Impacts of these changes on applicable land use plans and policies and existing land uses within the ISDRA are discussed below.

Consistency With Land Use Plans and Policies

Under Alternative 1, the ISDRA would continue to be managed for multiple uses, including recreation and resource protection, as specified in the CDCA Plan and in accordance with other applicable guidelines. No new management areas and associated ROS classes would

be designated. The CDPA of 1994 established the approximately 26,202 acre North Algodones Dunes Wilderness, located in the northern portion of the Plan Area. Alternative 1 would result in no change in the management of this area to maintain its wilderness status, as provided for in the CDPA. No land use or zoning changes are proposed for private and other lands not managed by the BLM in the Plan Area under this alternative. Alternative 1 would be consistent with the FLPMA, CDPA, CDCA Plan, and Imperial County General Plan and Zoning Regulations. However, implementation of the No Action Alternative would be inconsistent with applicable BLM recreation area management policies that call for periodic updates of management plans so that management practices can adapt to changing land use patterns and intensity.

Compatibility with Existing Land Uses

Under Alternative 1, non-recreational land uses would likely remain unchanged. The management agreements of the BLM with Bureau of Reclamation and the U.S. Navy would not change. BLM would continue to administer sand and gravel sales, geothermal leases, and oil and gas leases based on the concept of multiple use. Rights-of-way would be maintained consistent with current policies, and new rights-of-way would be granted subject to environmental review and compatibility with existing land uses.

The geographic distribution of recreational and non-recreational land uses at the ISDRA would be the same under Alternative 1 as under current conditions, and all currently allowed use types would continue to be permitted. The BLM would continue to manage the Recreation Area for multiple uses, including recreation and resource protection. Therefore, land uses under Alternative 1 would be compatible with existing land uses; and no adverse impacts are anticipated.

Alternative 2

The management emphasis of Alternative 2 is to assure continued use of the ISDRA for motorized and non-motorized recreational opportunities, and to provide for the protection of natural and cultural resources. The impacts of changes to applicable land use plans and policies consequent to the enactment of Alternative 2, as well as impacts to existing and future land uses at the ISDRA are discussed below.

Consistency With Land Use Plans and Policies

Under Alternative 2, management areas and associated ROS classifications would be established within the ISDRA that would accommodate both recreational opportunities, including motorized recreation, as well as the protection of biotic and cultural resources. The incorporation of multiple-use management measures for the ISDRA for this alternative would be consistent with FLPMA as well as specific recreation area management guidelines.

Changes to the MUC designations established by the CDCA Plan would occur under implementation of this alternative. Proposed management area and ROS class designations would not be consistent with allowable use under the existing MUCs with regard to the proposed type and intensity of recreational activities and the preservation of the character of the landscape. Therefore, Alternative 2 would require an amendment to the CDCA Plan.

No land use or zoning changes are proposed for private and non-BLM lands in the Plan Area. Alternative 2 recreation and resource protection objectives are in conformance with the respective goals and objectives set forth in both the Land Use Element and the Conservation and Open Space Element of the Imperial County General Plan. The County also has zoned the entire ISDRA as S-Open Space, which permits multiple uses consistent with the Conservation and Open Space Element of the General Plan. Therefore, this alternative is consistent with the Imperial County General Plan and Zoning Regulations.

Under Alternative 2, the North Algodones Dunes Wilderness Area would continue to be managed to maintain its wilderness values, as provided for in the CDPA. Therefore, this alternative would be consistent with the CDPA. Alternative 2 also would be consistent with FLPMA, the CDCA Plan, and Imperial County General Plan and Zoning Regulations. Implementation of this alternative would be consistent with applicable land use plans and policies.

Compatibility with Existing Land Uses

Alternative 2 would not result in changes to existing land use patterns in the ISDRA; and the BLM would continue to manage the ISDRA for multiple uses, including recreation and resource protection. The management agreements of the BLM with BOR and the U.S. Navy would not change. BLM would continue to administer sand and gravel sales, geothermal leases, and oil and gas leases based on the concept of multiple use. Such leases would potentially be granted within lands that are currently subject to interim closure.

The geographic distribution of recreational and non-recreational uses at the ISDRA would be the same under Alternative 2 as compared to the baseline. Overall, proposed land uses under Alternative 2 would be compatible with existing and future land uses; no land use compatibility impacts would result from implementation of this alternative.

Alternative 3

The goal of Alternative 3 is to implement an adaptive management strategy designed to optimize the protection of habitats and populations of sensitive species, while providing opportunities for continued OHV access and other recreational activities within the Plan Area. The effect of the enactment of Alternative 3 on applicable land use plans and policies, as well as existing and future land uses within the Plan Area, is discussed below.

Consistency with Land Use Plans and Policies

Under Alternative 3, management areas and associated ROS classes would be designated within the ISDRA that would be generally more restrictive to OHV recreational activities. However, the ISDRA would continue to be managed for multiple uses, including recreation. Based on the concept of multiple use, this alternative would be consistent with the FLPMA. Because OHV use in certain areas within the ISDRA would not be allowed under this alternative, the proposed management area and ROS class designations would be inconsistent with the permitted uses of the CDCA Plan for the ISDRA, as indicated by the MUC classification system. This alternative would require an amendment to the CDCA Plan.

No land use or zoning changes are proposed for private and other lands not managed by the BLM in the Plan Area. Alternative 3 would increase the protections provided to the North Algodones Dunes Wilderness Area by placing more restrictive ROS classifications on surrounding management areas. Therefore, this alternative would be consistent with the CDPA. Implementation of this alternative would be consistent with the FLPMA, CDPA, CDCA Plan, and Imperial County General Plan and Zoning Regulations. However, it would be inconsistent with the CDCA Plan unless it was amended by this action.

Compatibility with Existing Land Uses

Alternative 3 would result in the closure of some ISDRA areas to motorized recreation and limit the intensity level of OHV use in other areas as compared to the baseline. These land use changes would be compatible with surrounding land uses in the ISDRA as non-motorized recreational land uses would continue in these areas, motorized recreation would continue in other ISDRA areas, and natural and cultural resources would be afforded maximum levels of protection. Therefore, under Alternative 3, the BLM would continue to manage the ISDRA for multiple uses, including recreation and resource protection.

The management agreements of the BLM with the BOR and the U.S. Navy would not change. The BLM would continue to administer sand and gravel sales, geothermal leases, and oil and gas leases based on the concept of multiple uses, although leases would likely not be granted on areas permanently closed to vehicles.

While the geographic distribution of recreational and non-recreational uses at the ISDRA would change under Alternative 3 as compared to the baseline, all currently allowed use types would continue to be permitted. The BLM would continue to manage the ISDRA for multiple uses, including recreation and resource protection. Therefore, proposed uses under Alternative 3 would be compatible with existing and future land uses; and no land use compatibility impacts are anticipated from implementation of this alternative.

Alternative 4

The goal of Alternative 4 is to maximize motorized recreational opportunities within the ISDRA consistent with public scoping comments that had this as a priority. The effect of these changes, as compared to the baseline, on applicable land use plans and policies and existing and future land uses at the ISDRA is discussed below.

Consistency with Land Use Plans and Policies

Under Alternative 4, management areas and associated ROS classes would be designated within the ISDRA that maximize motorized recreational opportunities. The ISDRA would continue to be managed for multiple uses, including resource protection. Consequently, this alternative would be consistent with the FLPMA.

Because the intensity of OHV use in certain areas within the ISDRA would increase under this alternative, the proposed management area ROS class designations under this alternative would be inconsistent with the CDCA Plan uses for the ISDRA, as indicated by the MUC system. This plan would amend the CDCA Plan.

No land use or zoning changes are proposed for private and other lands not managed by the BLM in the Plan Area. Alternative 4 management measures are in conformance with the respective goals and objectives set forth in both the Land Use Element and the Conservation and Open Space Element of the Imperial County General Plan. The County also has zoned the entire ISDRA as S-Open Space, which permits multiple uses consistent with the Conservation and Open Space Element of the General Plan. Therefore, this alternative is consistent with the Imperial County General Plan and Zoning Regulations.

The CDPA of 1994 established the approximately 26,202-acre North Algodones Dunes Wilderness, located north of SR-78 and south of the Mammoth Wash Management Area. Enactment of Alternative 4 would not modify or minimize the protections provided to this wilderness as provided in the CDPA. Therefore, this alternative would be consistent with the CDPA.

Compatibility with Existing Land Uses

Although Alternative 4 would result in an increased intensity of motorized recreational use within the ISDRA as compared to the baseline, this alternative would be compatible with existing and planned land uses in the ISDRA. Motorized and non-motorized recreational land uses would continue. In addition, the management actions that apply to all alternatives, including the public relations, law enforcement, and adaptive management programs, would encourage protection for natural and cultural land uses by reducing the incidence of encroachment of intensive recreation activity to adjacent areas.

Non-recreational land uses would remain unchanged as a result of implementing Alternative 4. Management agreements of the BLM with the BOR and the U.S. Navy would not change. BLM would continue to administer sand and gravel sales, geothermal leases, and oil and gas leases based on the concept of multiple use, and leases would potentially be granted within lands that are currently subject to interim closure.

While the geographic distribution of recreational land uses at the ISDRA would change under Alternative 4 as compared to the baseline, all currently allowed use types would continue to be permitted. Therefore, proposed uses under Alternative 4 would be compatible with existing and anticipated future land uses; and no land use impacts are anticipated from implementation of this alternative.

Mitigation Measures

No adverse impacts were identified that would require mitigation measures for any project alternative.

Cumulative Effects

BLM has recently revised several plans. Each of these plans amended the CDCA Plan. Together these plans change the land use in the California Desert District. The acreages allotted to each multiple land use classification changed.

NECO is intended to protect and conserve natural resources, providing in particular for the recovery of the desert tortoise, while simultaneously balancing human uses of the Colorado portion of the Sonoran Desert ecosystem. The planning area for NECO comprises more than 5.5 million acres and is bordered along the southwest by the ISDRA. The land affected includes the northern and eastern Colorado Desert and the eastern half of Joshua Tree National Park.

BLM is the lead agency for plan development, with cooperation from NPS, the US Marine Corps (USMC), USGS, USFWS, CDFG, Imperial County, and Riverside County. The management plan would become a binding plan for BLM, NPS, and the CMAGR. BLM recently signed a record of decision for the NECO Plan.

Implementation of NECO would amend the CDCA Plan and would result in beneficial impacts to biological resources in the desert Southwest. NECO could result in reduced motorized vehicle access within its planning area, as well as the closing of some desert washes in the western part of Riverside County and two small OHV areas. Few people currently visit the OHV areas proposed to be closed (Ford Dry Lake, which is 1,134 acres, and Rice Valley Dunes, which is 2,790 acres) (Crowe, 2002).

The purpose of the West Mojave Habitat Conservation Plan (West Mojave Plan) is to conserve and protect the desert tortoise and nearly 100 other sensitive plants and animals, as well as the ecosystems on which they depend. The 9.4 million-acre planning area encompasses most of California's western Mojave Desert. It extends from Olancho in Inyo County on the north to the San Gabriel and San Bernardino Mountains on the south, and from the Antelope Valley on the west to the Mojave National Preserve on the east. About one third of the planning area is private land, approximately one third is within military reservations, and the remainder consists of public lands managed by BLM.

BLM is the lead agency for preparation of a DEIS for the draft West Mojave Plan. The DEIS is anticipated to be released in mid-2003. Implementation of the West Mojave Plan could result in beneficial impacts to biological resources in the western Mojave Desert. Depending on the alternative selected, the West Mojave Plan could result in reduced motorized vehicle access within its planning area and increased management of existing OHV areas (Pilmer, 2002).

The draft Northern and Eastern Mojave Plan (NEMO Plan) includes management actions to protect threatened, endangered, and sensitive species and habitats on federal lands administered by the BLM in the eastern Mojave Desert. The NEMO Plan may amend the

CDCA Plan. The NEMO Plan area encompasses about 2.4 million acres of public lands in eastern San Bernardino and Inyo Counties of California.

BLM is the lead agency for completion of the NEMO Plan and consequent CDCA Plan Amendments. A record of decision was recently signed for this plan. (However, an additional plan will be completed to designate routes.) The EIS for this project analyzes potential impacts from the implementation of the proposed MUCs for the lands released from wilderness consideration by enactment of the CDPA, route designation in some areas, a proposed strategy to accomplish route designation in the remainder of the planning area, and proposed MUC changes to eliminate landfills on public lands.

Implementation of the NEMO Plan could result in beneficial impacts to biological resources in the NEMO planning area. Depending on the alternative selected, the NEMO Plan could result in reduced motorized vehicle access within its planning area and increased management of existing OHV areas (BLM, 2002). The NEMO Plan, however, does not propose increased management of Dumont Dunes, which offers a similar semi-primitive motorized OHV experience as the ISDRA (although Dumont Dunes is significantly smaller than the ISDRA) (Aarons, 2002). Dumont Dunes is located approximately 30 miles north of Baker on SR-127, off Dumont Dunes Road. It is approximately 275 miles northeast of the ISDRA.

WECO ROT is a BLM project to develop a transportation network in the Imperial Valley. Its action is limited to designation of existing routes of travel and camping areas; multiple use classifications will not be changed in this project. Implementation of the WECO ROT plan could result in beneficial impacts to biological resources in the WECO ROT planning area. WECO ROT Plan could result in reduced motorized vehicle access through the closure of some routes and limitations (vehicle/seasonal) on other routes.

The Gateway of the Americas Specific Plan Area (Gateway) is a 1,775-acre master-planned industrial and commercial complex owned by private parties and federal, state, and local agencies. Retail shopping, business offices, and lodging would be developed in response to the traffic from the Port of Entry. Cumulative effects relate to the loss of undeveloped rural land and the development of rural land into industrial, commercial, and transportation-related services. Imperial County prepared the Final EIR for the Gateway Specific Plan in 1997 (Imperial County Planning Department, 1997). The project is in various stages of development in the initial construction phase (Phase 1). Phase 2 is expected to continue for 20 to 40 years (IID and BOR, 2002).

4.7 Visual Resources

All land-disturbing activities have a direct effect on the visual resource. These effects can be either positive or negative, depending on the location, size, color, and viewing location. Generally speaking, alternatives with high levels of recreation development have the highest potential for decreasing scenic quality. Ground-disturbing activities like road and facilities construction have the potential of not harmonizing with the natural character of the landscape. Dispersed camping opportunities also have the potential to degrade the landscape, but to a much lesser degree.

Alternatives that prescribe management for vegetation and wildlife habitat would have little direct effect on visual resources. In addition, alternatives that remove non-native and other encroaching vegetation would increase the visual variety of a landscape.

Alternatives in which people are encouraged to gather in certain areas have an indirect effect on the visual resource. Vegetation can be trampled, user-built trails tend to appear, and litter detracts from the naturalness of the landscape.

Assumptions and Assessment Guidelines

Visual Resource Management classes have been provided for purposes of comparison only to provide a context of potential changes that could occur to the visual landscape. Adverse impacts on the visual resources of the ISDRA would result if the following conditions exist: Development proposed as part of an alternative would substantially alter the undisturbed character of the ISDRA landscape, or would be out of character with the landscape. View opportunities from established lookouts (e.g., Osborne Lookout or Mesquite Mine Lookout) are obstructed or eliminated. View opportunities from known popular areas (other than lookouts) are obstructed or eliminated.

Impacts

Alternative 1

This alternative would not affect the current status of the North Algodones Dunes Wilderness Area, which prohibits motorized use within its boundaries, but allows non-motorized recreation use.

It is expected that recreationists would continue to congregate at the popular areas during peak-use times (e.g., major holiday weekends). Due to anticipated increases in visitation, the visual resources of the landscape during peak periods would appear more crowded at the popular areas when compared to baseline conditions. These additional visitors during peak-use periods will result in temporary (episodic) landscape changes. When the peak-use periods end, use levels and associated visual resources would return to a condition that is similar to the baseline condition. This episodic change in visual resources is not considered an adverse impact.

Evaluating this alternative in the context of the VRM classes depicted in Figure 3.7-1 indicates that the level of existing development associated with this alternative is generally consistent with the associated VRM classes.

Alternative 2

Change in ROS Designation

When compared to the baseline condition, the ROS associated with this alternative would allow changes in recreation use, in terms of intensity of use, type of use allowed (motorized versus non-motorized), and level of facility development. Implementation of this alternative would allow more intense use in the following areas, when compared to the baseline condition:

Ogilby Management Area

Implementation of this alternative would allow similar use in the following areas, when compared to the baseline condition:

Adaptive Management Area
Dune Buggy Management Area
Gecko Management Area
Glamis Management Area
Buttercup Management Area
North Algodones Dunes Wilderness Area

Implementation of this alternative would allow a less intense level of use in the following areas, when compared to the baseline condition:

Mammoth Wash Management Area

From a visual resources perspective, allowing more intense use in a management area would change the landscape during periods of peak use. Views of areas during peak use periods from the air or from higher elevations atop the dunes provide a very different image than views of the same areas during mid-week periods. This short-term change in landscape is adverse, but is not considered significant. This conclusion is based in part on the fact that recreationists visiting ISDRA during peak-use periods have the expectation of seeing crowds. Allowing more intense use in a particular management area provides views of the inner dunes to more recreationists at one time. This is a visual benefit to the public. Conversely, allowing less intense use in a particular management area provides views of the inner dunes to fewer recreationists at one time. Due to the high level of mobility of the recreationists using the dunes, a lower level of allowable use would not adversely affect view opportunities of the OHV enthusiasts.

This alternative would also include updating the kiosks at the Wildlife Viewing Area. This would enhance the viewing experience of visitors and is considered a beneficial impact. A ranger station would be constructed at Cahuilla and Buttercup. This would not alter views from Osborne Overlook.

Applying a dust palliative on the Wash Road has the potential to reduce the dust and, therefore, increase visibility during windy or higher use days. This would result in a visual benefit to the public.

This alternative would provide for the development of pit toilet facilities in Glamis Flats, The Washes, and Dune Buggy Flats areas. This would result in the introduction of structures where they currently do not exist. This would be considered an adverse visual impact.

Potentially closing Oldsmobile Hill, Competition Hill, Test Hill, and Patton Valley at night would result in those areas appearing darker at night (less nighttime glow) due to the elimination of vehicle lights.

In the Buttercup Management Area, several changes to the landscape would occur. Interpretive facilities and parking would be developed near Grays Well Road, a law enforcement facility would be constructed, and camping sites could be designated. These facilities would change the character to a more developed area; however, a rural ROS designation would allow such changes, and such development would be consistent with the associated VRM Class 4.

Evaluating this alternative in the context of the VRM classes depicted in Figure 3.8-1 indicates that the level of existing development associated with this alternative is generally consistent with the associated VRM classes.

Change in Visitation

Visitation is expected to increase over the years; therefore, the concentration of users is also expected to increase. In addition, more concentrated use would be allowed in certain areas of the ISDRA with implementation of this alternative. These additional visitors during peak-use periods will result in temporary (episodic) landscape changes. When the peak-use periods end, use levels and associated visual resources would return to a condition that is similar to the baseline condition. This episodic change in visual resources is not considered an adverse impact because it would be temporary in nature.

Alternative 3

Change in ROS Designation

When compared to the baseline condition, the ROS associated with this alternative would affect the intensity of recreation use and the level of facility development.

Implementation of this alternative would allow the same intensity of use in the following areas, when compared to the baseline condition:

- Gecko Management Area
- Dune Buggy Flats Management Area
- North Algodones Dunes Wilderness
- Ogilby Management Area

Implementation of this alternative would allow less intense use in the following areas, when compared to the baseline condition:

- Adaptive Management Area, including not allowing motorized vehicles.
- Mammoth Wash Management Area, including not allowing motorized vehicles.
- Buttercup Management Area
- Glamis Management Area

Allowing less intense use in a particular management area provides views of the inner dunes to fewer recreationists at one time. Due to the high level of mobility of the recreationists using the dunes, a lower level of allowable use would not adversely affect view opportunities of the OHV enthusiasts.

This alternative would also include updating the kiosks at the Wildlife Viewing Area. This would enhance the viewing experience of visitors and is considered a beneficial impact. Applying a dust palliative on the Wash Road has the potential to reduce the dust and, therefore, increase visibility during windy or higher use days. This would result in a visual benefit to the public.

This alternative would provide for the development of pit toilet facilities in Glamis Flats, The Washes, and Dune Buggy Flats areas. This would result in impacts similar to those described above under Alternative 2.

Potentially closing Oldsmobile Hill, Competition Hill, Test Hill, and Patton Valley at night would result in those areas appearing darker at night (less nighttime glow) due to the elimination of vehicle lights.

A ranger station would be constructed at Osborne Overlook. This would alter views from this location.

In the Buttercup Management Area, several changes to the landscape would occur. Interpretive facilities and parking would be developed near Grays Well Road, and a law enforcement facility would be constructed. These facilities would change the character to a more developed area; however, a roaded natural ROS designation would allow such changes, and such development would be consistent with the associated VRM Class 3. Evaluating this alternative in the context of the VRM classes depicted in Figure 3.7-1 indicates that the level of existing development associated with this alternative is generally consistent with the associated VRM classes.

Change in Visitation

Visitation is expected to increase over the years; therefore, the concentration of users is also expected to increase. However, lower levels of use and development would be allowed in certain areas of the ISDRA with implementation of this alternative. Additional visitors resulting from future growth in attendance during peak-use periods will result in temporary (episodic) landscape changes. When the peak-use periods end, use levels and associated

visual resources would return to a condition that is similar to the baseline condition. This episodic change in visual resources is not considered an adverse impact because it would be temporary in nature.

Alternative 4

Change in ROS Designation

When compared to the baseline condition, the ROS associated with this alternative would affect the intensity of recreation use and the level of facility development. Implementation of this alternative would allow more intense use in the following areas, when compared to the baseline condition:

- Dune Buggy Management Area
- Adaptive Management Area.
- Ogilby Management Area
- Gecko Management Area
- Glamis Management Area

Implementation of this alternative would allow the same use in the following areas, when compared to the baseline condition:

- North Algodones Dunes Wilderness Area
- Buttercup Management Area

Implementation of this alternative would allow less intense use in the following areas, when compared to the baseline condition:

- Mammoth Wash Management Area

From a visual resources perspective, allowing more intense use in a management area would change the landscape during periods of peak use. Views of areas during peak-use periods from the air or from higher elevations atop the dunes provide a very different image than views of the same areas during mid-week periods. This short-term change in landscape is adverse, but is not considered significant. This conclusion is based in part on the fact that recreationists visiting ISDRA during peak-use periods have the expectation of seeing crowds.

Allowing more intense use in a particular management area provides views of the inner dunes to more recreationists at one time. This is a visual benefit to the public. Conversely, allowing less intense use in a particular management area provides views of the inner dunes to fewer recreationists at one time. Due to the high level of mobility of the recreationists using the dunes, a lower level of allowable use would not adversely affect view opportunities of the OHV enthusiasts.

The impacts associated with the construction of a ranger station at Cahuilla would be the same as the impact discussed previously under Alternative 2. The additional facilities planned in the Glamis Management Area would also result in similar impacts as

Alternative 2, but would be marginally greater due to the increased level of facility development provided under this alternative.

Applying a dust palliative on the Wash Road has the potential to reduce the dust and, therefore, increase visibility during windy or higher use days. This would result in a visual benefit to the public.

Potentially closing Oldsmobile Hill, Competition Hill, Test Hill, and Patton Valley at night would result in those areas appearing darker at night (less nighttime glow) due to the elimination of vehicle lights.

In the Buttercup Management Area, several changes to the landscape would occur. Interpretive facilities and parking would be developed near Grays Well Road, camping sites would be designated, and a law enforcement facility would be constructed. These facilities would change the character to a more developed area; however, an urban ROS designation would allow such changes, and such development would be consistent with the associated VRM Class 4.

Evaluating this alternative in the context of the VRM classes depicted in Figure 3.7-1 indicates that the level of existing development associated with this alternative is generally consistent with the associated VRM classes.

Change in Visitation

Visitation is expected to increase over the years; therefore, the concentration of users is also expected to increase. In addition, more concentrated use would be allowed in certain areas of the ISDRA with implementation of this alternative. Additional visitors during peak-use periods will result in temporary (episodic) landscape changes. When the peak-use periods end, use levels and associated visual resources would return to a condition that is similar to the baseline condition. This episodic change in visual resources is not considered an adverse impact because it would be temporary in nature.

Mitigation Measures

The following measures should be applied to all new facilities and physical improvements in the ISDRA to ensure they harmonize with the natural landscape. The degree to which an activity harmonizes with the landscape is based on whether its form, line, color, and texture replicate those of the existing landscape.

Within the North Algodones Dunes Wilderness Areas, no improvements to roadways, new interpretive signs and kiosks, or establishment of vendor areas should occur in this VRM Class 1 area.

When updating the kiosks near the Wildlife Viewing Area in the VRM Class 1 area (near the North Algodones Dunes Wilderness Area) and in developing and constructing the new ranger stations, use materials that harmonize with the natural landscape.

Additional interpretive signs, kiosks, and vendor areas should occur in VRM Class 3 or 4 areas only. By definition, interpretive signs, kiosks, and vendor areas should attract attention; therefore, they should not be developed in Class 1 or 2 areas.

Cumulative Effects

The U.S. Border Patrol has placed numerous tools in the ISDRA to assist in apprehending undocumented immigrants and smugglers. These tools include barriers, shade structures and cameras. These items and the associated Border Patrol activities can have a cumulative effect on visual resources.

Several utility corridors exist in the ISDRA; they too, can have a negative cumulative effect on the visual landscape.

4.8 Water Resources

Assumptions and Assessment Guidelines

The assessment of impacts assumes that implementation of the project alternatives will include measures required by federal, state, or local law and/or regulation, if applicable. The project alternatives would have an adverse impact on water resources if it would:

- Substantially degrade water quality
- Contaminate a public water supply
- Cause substantial flooding or siltation
- Substantially alter surface flow conditions, patterns, or rates
- Result in water demands that would outstrip supply

The All American Canal, the New Coachella Canal, and ephemeral surface flows are the only surface waters in the project vicinity that have the potential to be affected by planned activities under this alternative. The majority of ephemeral surface flows are located in the eastern portion of the Plan Area.

Some of the OHVs at the ISDRA are expected to leak minor amounts of petroleum products in the normal course of operations. Small amounts of oil and fuel may be spilled or leaked onto the ground surface while refueling OHVs. Although such leakage is considered an adverse consequence of OHV use, it is not expected to affect groundwater quality. This is because leakage would be minor on an individual basis and, as a whole, would occur in a dispersed manner that corresponds to the OHV usage areas in the ISDRA. The potential for oil, grease, and fuel leakage to actually reach groundwater is extremely remote due to the low rainfall levels in the project area, the great depth to groundwater, and the volatile nature of fuel.

The chief impacts on water resources resulting from enactment of any of the alternatives would be to increase or decrease water supply demand by visitors to the ISDRA. However, visitors bring their own water supply to the ISDRA. There is no water available for public use at the ISDRA. Current as well as projected future visitor use levels under any of the alternative scenarios would result in water-use rates that fall well under the available water supply. (Please note that the water supply used by the visitors is from the visitor's home area, or purchased through vendors or stores, typically in the local community surrounding the ISDRA. It is not supplied by BLM at the ISDRA.)

The Plan Area is not an area of groundwater recharge, nor would any of the alternatives affect groundwater quality of supplies.

Impacts

Alternative 1

Surface Water Impacts

Impacts to surface waters under Alternative 1 would be negligible. Therefore, significant adverse impacts to surface waters are not anticipated.

Groundwater Impacts

Negligible impacts to groundwater are anticipated under this alternative. Significant adverse impacts would not occur.

Wildlife Guzzler Impacts

Wildlife guzzlers are clearly marked. Potential impacts to the wildlife guzzlers in the Mammoth Wash Management Area and the North Algodones Dune Wilderness Area would be somewhat greater than under the action alternatives due to the lack of management responses to increased visitor use entailed by the No Action Alternative.

Alternative 2

Surface Water Impacts

Negligible increases in impermeable surface would result from limited facility development and road improvements. However, no change in the potential for storm water runoff to reach the All American Canal or the New Coachella Canal would result; runoff would continue to infiltrate into the surrounding sands and soil rather than flow to the canals. Impacts from OHV activities would be marginally greater than Alternative 3 due to a larger area open to OHV use and higher visitor use. Impacts would be less than under Alternative 4 due to less OHV acreage and lower intensity of use. Therefore, impacts to surface waters under this alternative would be negligible. Significant adverse impacts to surface water would not result from implementation of this alternative.

Groundwater Impacts

Impacts to groundwater under this alternative would be negligible. Significant adverse impacts to the groundwater would not result from implementation of this alternative.

Wildlife Guzzler Impacts

As noted above, wildlife guzzlers are clearly marked. The potential for impacts to the wildlife guzzlers in the Mammoth Wash Management Area and the North Algodones Dune Wilderness Area would be less under this alternative due the application of appropriate management procedures accompanying increased visitor use.

Alternative 3

Surface Water Impacts

Negligible increase in impermeable surface would result because of limited facility development and no road improvements are proposed under this alternative. No change in the potential for storm water runoff to reach the All American Canal or the New Coachella Canal would result; runoff would continue to infiltrate into the surrounding sands and soil

rather than flow into the canals. Therefore, no impacts to surface water are anticipated from this alternative.

Groundwater Impacts

The majority of OHV use under this alternative would occur in the area south of SR-78 (including along Gecko Road) and in the vicinity of I-8.

Further, implementation of this alternative would not result in a substantial change from existing conditions. Significant adverse impacts to groundwater quality are not anticipated and mitigation is not proposed.

Wildlife Guzzler Impacts

Under Alternative 3, the wildlife guzzlers would not be affected by OHV use because the areas where the guzzlers are located (Mammoth Wash Management Area and the North Algodones Dunes Wilderness Area) would be closed to OHV use. No adverse impacts to guzzlers would occur under this alternative.

Alternative 4

Surface Water Impacts

Under this alternative, proposed facility developments and road improvements would increase the area of impermeable surfaces in the Plan Area. However, due to the extremely small scale of these improvements compared to the 159,000 acre ISDRA, as well as the location of the improvements relative to ephemeral surface waters, the potential for substantially increased runoff or degraded water quality is considered negligible. Significant impacts to surface water quality are not anticipated.

Groundwater Impacts

Impacts to groundwater under this alternative would be negligible because the increased area open to OHV use and the increased level of intensity are not expected to exceed a threshold beyond which percolation of fuel or oil would be expected to occur to the water table. Therefore impacts, including significant adverse impacts, to groundwater would not occur.

Wildlife Guzzler Impacts

The enactment of Alternative 4 would not affect the wildlife guzzlers in the North Algodones Dunes Wilderness Area because that area will remain closed to OHV use under this alternative. The two guzzlers in the Mammoth Wash Management Area are within areas designated open for OHV use under this alternative, but are clearly marked. Typically, OHV users avoid structures and areas of high plant growth. Any substantial disturbance of the guzzler area would be considered an adverse impact.

Mitigation Measures

To avoid potential adverse impacts to the two wildlife guzzlers in the Mammoth Wash Management Area, the area in the immediate vicinity of the guzzlers could be closed to OHV use. This type of mitigation measure would be expected to prevent any adverse impact to the wildlife guzzlers in the Mammoth Wash Management Area.

Cumulative Effects

None identified.

4.9 Cultural Resources

Assumptions and Assessment Guidelines

Direct impacts on cultural resources are typically related to the level of ground disturbance associated with a project. Ground disturbance, whether for facilities improvements or other activities, is the primary factor affecting archaeological sites and sites with Native American heritage values. Indirect impacts are less associated with the intentional changes being produced by the project. These can include such things as changes to or new travel access routes that lead to greater access to an area, thus increasing the potential for looting. Erosion-control measures that alter deposition patterns and lead to greater erosion or sedimentation can also indirectly affect cultural resources.

The following assumptions were made in determining impacts resulting from the Project Alternatives:

The current cultural resources database for the ISDRA is representative of the range of resources present.

Ground disturbance that affects cultural resources can cause irreversible damage to these nonrenewable resources.

Owing to the nature of shifting sands, and particularly their depth, regardless of the level of inventory, some resources may not be identified.

Greater access to an area through time means more opportunities for unauthorized collection and looting, as well as more ground disturbance.

Conversely, reduced access over time leads to reduced opportunities for unauthorized collection and looting, and reduced ground disturbance.

Employing these assumptions, and what is currently known of the cultural resources of the project area, extrapolations are made below regarding the extent of impact to cultural resources that would result from enactment of each of the project alternatives, including the No-Action Alternative.

Impacts

Given the known cultural resources present in the ISDRA, all alternatives have the potential to affect resources that may qualify for the California Register of Historical Resources (CRHR) and the NRHP. The following discussion provides a ranking of the four project alternatives based on their potential for ground disturbance. Under this ranking, the assessment of the relative potential of an alternative to affect cultural resources is based on the premise that the greater the degree of access to OHV use and the greater the area of

potential ground disturbance, the greater the potential for effects. Due to limitations in the existing data, this approach does not take into consideration resource significance, site type and complexity, or variations in resource densities.

Alternative 1

Under Alternative 1, the degree of access and relative area of disturbance, and therefore potential for impacts, could be greater than Alternatives 2 and 3, but less than Alternative 4. Management measures currently in place could continue, such as public educational efforts that stress the importance of not disturbing cultural resources, and therefore some reduced impact to cultural resources would be expected, relative to Alternative 4, below.

Alternative 2

Alternative 2 could result in a greater area of disturbance than Alternative 3, and, therefore, would have a higher potential for cultural resource impacts. However, Alternative 2 could result in a smaller area of disturbance than Alternatives 1 or 4 (see below) and, therefore, would have a lower potential for cultural resource impacts than these alternatives would.

Alternative 3

Enactment of Alternative 3 could result in the most restrictive measures being applied to OHV recreational activity in the ISDRA. Therefore, this alternative would have the least potential for ground disturbance, due to the minimal area open to OHV use, compared to the other project alternatives and existing conditions. Enactment of this alternative could also restrict access more than any other alternative, and therefore minimize the possibility of unauthorized collection of cultural resources. Therefore, impacts to cultural resources under this alternative would be less than all other alternatives.

Alternative 4

Enactment of this alternative could open portions of the ISDRA to the highest intensity of use (e.g., the Gecko and Buttercup Management Areas would receive a ROS classification of Urban), and open the widest area to OHV recreational activities, relative to other alternatives. Ground disturbing activities could therefore be more extensive and of higher intensity than any other alternative. In addition, the greater level of access would result in a higher frequency of unauthorized disturbance of cultural resources. Therefore, Alternative 4 could have greater impacts to cultural resources than any of the other alternatives.

Mitigation Measures

National Register historic properties, the Plank Road and All American Canal, are within the dune system and the Coachella Canal is adjacent to the western edge of the dunes. None of these historic properties will be adversely affected by any of the alternatives to the plan, and alternative 2 benefits Plank Road by providing for additional protective measures, as identified in the RAMP.

Any actions, which occur as a result of implementing this plan, will be reviewed in accordance with Section 106 of the National Historic Preservation Act and BLM's Protocol Agreement.

Cumulative Effects

The U.S. Border Patrol has placed numerous tools in the ISDRA to assist in apprehending undocumented immigrants and smugglers. These tools include barriers, shade structures and cameras. These activities can have a cumulative effect on cultural resources as the tool and associated activities are ground disturbing.

Several utility corridors exist in the ISDRA; they too, can have a negative effect on the cultural resources due to their ground disturbing nature.

In addition, the ISDRA is a popular location for photography and filming. Both of these activities can have a negative effect on cultural resources due to their potential ground disturbing nature.

4.10 Transportation and Traffic

Assumptions and Assessment Guidelines

The analysis of potential traffic impact was prepared based on the *Highway Capacity Manual* published by the Transportation Research Board of the National Research Council. In addition, the American State Highway and Transportation Officers' *Geometric Design of Highways and Streets* was considered in determining impact significance.

Impacts

Vehicular traffic generated by each alternative is directly proportional to the estimated visits. It is assumed that the average occupancy of vehicles is 3.5 persons per vehicle. Vehicle occupancy for recreational trips is typically higher than that of general traffic. The 3.5 occupancy rate is based on the assumption of three or four occupants in the majority of vehicles and 0.5 percent tour bus use. Table 4.10-1 shows the baseline and projected future annual vehicular traffic for the four project alternatives. Future traffic is projected to the 2012/2013 season, consistent with the assumption that the updated RAMP will be in place at least 10 years. The 2012/2013 traffic is based on the maximum annual growth rates noted previously in Table 4.1-1.

Table 4.10-1. Project Generated Annual Vehicular Traffic

Project Alternatives*	1999/2000 Baseline		2012/2013	
	Visits	Annual Vehicle Trips *	Visits	Annual Vehicle Trips *
Alternative 1	867,753	495,860	2,071,000	1,183,430
Alternative 2	867,753	495,860	1,637,000	935,430
Alternative 3	867,753	495,860	1,488,000	850,290
Alternative 4	867,753	495,860	1,800,000	1,028,570

* Based on an average vehicle occupancy of 3.5

Annual traffic volume is only a general indicator of traffic impact. The most critical element in highway capacity and LOS is the peak-hour volume. Based on historical attendance estimates, peak traffic volumes would occur over the six major holiday weekends.

Furthermore, for purposes of this analysis, it was assumed that the arrival peak is more critical than the departure peak, that the majority of the arrivals are concentrated in the first 2 days, and that 60 percent arrive on the peak day. Due to the diverse origin of the arriving trips, it is conservative to assume that 20 percent of the peak-day traffic will be concentrated in the peak hour.

As noted previously in Section 3.10, the Thanksgiving weekend has historically been the most popular major holiday weekend, with approximately 12 percent of all annual visits. Therefore, the highest volumes of traffic are expected to occur during this period. Potential traffic impacts for each of the alternatives are discussed below, and are based on the worse-case scenario during the Thanksgiving holiday.

Alternative 1

As noted above under Table 4.10-1, the highest future (2012/2013 season) annual traffic volumes are projected to occur under Alternative 1. Table 4.10-2 shows the distribution of Alternative 1 peak-hour volumes on major highway segments providing access to the project sites during the Thanksgiving weekend.

Table 4.10-2. Peak Hour Traffic Distribution and LOS (Alternative 1)

Access	% Distribution	Baseline				2012/2013			
		Highest ISDRA Inbound Peak Hour	Peak Hour Inbound for ISDRA	Total Traffic*	Level of Service	Highest ISDRA Inbound Peak Hour	Peak Hour Inbound for ISDRA	Total Traffic*	Level of Service
I-8 West	50	3,570	1,790	2,580	C	8,520	4,260	5,550	F
I-8 East	8	3,570	290	1,320	B	8,520	680	2,380	C
SR-78 West	32	3,570	1,140	1,670	E	8,520	2,730	3,590	F
SR-78 East	8	3,570	290	740	C	8,520	680	1,410	D-E
SR-98 West	2	3,570	70	230	B	8,520	170	430	B

*One-way inbound for I-8, two-way for SR-78 and SR-98

For the highest peak hour on Thanksgiving weekend, SR-78 west of the project site will be operating at LOS E in the baseline year and LOS F in 2012/2013. I-8 west will be operating at LOS F in 2012/2013. LOS E represents a condition near capacity or at capacity and LOS F is the operation condition where capacity is exceeded by demand and a slow moving queue begins to form.

The highest hourly volume of the year is not the criteria for highway design and acceptable LOS. The Association of American State Highway and Transportation Officers (AASHTO) recommends that the 30th highest hourly volume of the year be used as the design capacity of highways. However, for highways with unusual or highly seasonal fluctuation in traffic flow, the 30th hourly volume criterion may not be appropriate. The AASHTO *Geometric Design of Highways and Streets* states that economy dictates a design that results in somewhat less satisfactory traffic operation during seasonal peaks than on rural roads with normal fluctuation, and the public generally will accept such conditions. AASHTO further recommends that it may be desirable to choose an hourly volume for design, which is about 50 percent of the volumes expected to occur during a very few maximum hours of the design year.

Based on the criteria of designing for 50 percent of the highest hourly volume, all segments of highways providing access to the project sites will be operating at LOS D or better. Further, the capacities of I-8 exit ramps will not be exceeded during the design peak hour assuming that the in-bound traffic will be distributed equally to the exits at Grays Well Road

and Ogilby Road. Therefore, in the context of normal highway design practice, adverse traffic impacts during a few hours per year would not be considered significant. Adverse (though less than significant) impacts associated with future peak-hour project traffic during major holiday weekends would be mitigated through implementation of a Traffic Control Plan (TCP), as described below under the mitigation section.

Alternative 2

The high estimate for future visitation under Alternative 2 is approximately 20 percent less than the high range estimate under Alternative 1. Because traffic volumes are directly proportionate to visitation, future traffic trips to ISDRA under Alternative 2 would be approximately 20 percent less than under Alternative 1. Therefore, traffic impacts under this alternative would be less than under Alternative 1, and would not be significant. Similar to Alternative 1, potential adverse impacts associated with peak-hour holiday traffic will be mitigated through implementation of a TCP.

Alternative 3

The high estimate for future visitation under Alternative 3 is approximately 30 percent less than the high range estimate under Alternative 1 and about 10 percent less than under Alternative 2. Because traffic volumes are directly proportionate to visitation, the future traffic trips to ISDRA under Alternative 3 would be less than under Alternatives 1 and 2. Adverse impacts during the peak hour of major holiday weekends would be less under this alternative than under Alternatives 1 and 2, and would not be significant. Peak-hour impacts during major holiday weekends would be mitigated through implementation of a TCP.

Alternative 4

The high estimate for future visitation under Alternative 4 is approximately 15 percent less than the high range estimate under Alternative 1. Because traffic volumes are directly proportionate to visitation, future traffic trips to ISDRA under Alternative 4 would be less than under Alternative 1. Therefore, traffic impacts would not be significant. Future traffic volumes under Alternative 4 would be greater than under Alternatives 2 and 3 by approximately 10 and 20 percent, respectively. Therefore, impacts resulting from traffic under this alternative would also be greater than under Alternatives 1 and 2. Similar to Alternative 1, 2 and 3, adverse impacts during the peak hour of major holiday weekends would be mitigated through implementation of a TCP.

Mitigation

Developing a Special TCP could mitigate the traffic impacts caused by the few hours of exceptionally high hourly volumes. The TCP should include advance portable changeable message signs used on the freeway and local roads to provide motorist information and direct traffic to alternative exits. The TCP should include dispatching Rangers and California Highway Patrol officers to freeway exits and intersections along the access routes to direct traffic and provide quick response to traffic incidents.

Cumulative Effects

Border Patrol contributes to the traffic in the ISDRA Planning Area as a part of their apprehension of undocumented immigrants and smugglers.

4.11 Noise

Introduction

Management actions for the entire ISDRA Plan Area (see Table 2.1) that would have the potential to result in increased noise exposure include:

Recreation – the level and locations of OHV activities within the management planning areas could determine the degree to which offsite locations or campgrounds may be exposed to noise generated from such activities.

Transportation/Traffic - grading and improvement of roads within the areas, potentially could result in increases in vehicular movements in some areas that would, in turn, cause elevated ambient noise levels.

Access and Facilities – development of new facilities in undeveloped areas would result in heightened human visitation and localized increases in ambient noise levels in such areas.

On the other hand, many management actions throughout the Plan Area could effectively control noise generated from activities in the management areas. Such actions include:

ROS classifications could eliminate or limit OHV activities within the management areas (e.g. semi primitive non-motorized areas such as the North Algodones Dunes Wilderness Management Area).

The adaptive management plan for biological resources could implement adaptive actions based on information gathered through scientific monitoring. Over time, the adaptive management actions could improve the environmental conditions for biological resources, including exposure to noise, where such measures are deemed necessary.

A number of public safety measures could have curbing effects on noise generated within the management areas. Such measures include law enforcement, posting of speed limits, and closure of certain areas from sundown to sunup.

Assumptions and Assessment Guidelines

The assessment of impacts assumes the implementation of measures required by federal, state, and local laws and regulations. Implementation of a project alternative would normally have an adverse noise impact if it would:

Substantially increase noise levels above the existing ambient noise levels at sensitive receptor sites (e.g., residences, schools, churches, hospitals)

Exceed local noise standards at sensitive receptor sites

Impacts are delineated as short-term construction noise or long-term operational noise.

Impacts

Alternative 1

Under Alternative 1, the ISDRA would continue to be managed according to existing and approved management plans prescribed by the 1987 RAMP. All portions of the 1987 RAMP were not fully implemented and some may be implemented in the future. This may include facility development activities that would result in short-term construction noise. However, construction noise levels would be temporary and would not impact any noise-sensitive receptors. Significant noise impacts would not result.

Under Alternative 1, recreational usage (primarily OHV and camping) is expected to increase relative to baseline conditions. Consequently, background noise levels are expected to increase in usage areas. However, the increases in noise levels would not be significant because the ISDRA is remote; and there are no sensitive receptors in the vicinity. Although there are no limitations on OHV activity areas under Alternative 1, significant OHV noise impacts are not anticipated to occur.

Title 9, Chapter 2, Section 90702.00 of the Imperial County Ordinance defines noise level limits based on land use zones. The most stringent noise level criterion applied by the county is a nighttime limit of 45dBA hourly average noise level (L_{eq}) for single-family residences. The County's General Plan establishes a 60 dB Community Noise Equivalent Level (CNEL) standard for single-family residential areas. CNEL is a 24-hour weighted average noise level with more weight given to noise levels occurring in the evening and nighttime periods. The CNEL standard of the county is less stringent than the 45 dBA limit.

As mentioned in the Affected Environment (Section 3.11), the nearest sensitive receptors are approximately 7 miles west of the Plan Area. The reference noise level for a single OHV at 50 feet is 92 dBA. It is unlikely that noise generated at the ISDRA can effect off site receptors.

It has been shown that prolonged noise can adversely affect some lizards (e.g., desert iguana, Mohave fringe-toes lizard). Laboratory studies show that dune buggy sounds, collected from the Imperial Valley, of moderate intensity and short duration cause hearing loss in Colorado Desert fringed-toed lizards. However, it is not known whether or not vehicle noise at levels and durations anticipated in the desert negatively impact flat-tailed horned lizards. Exposure to vehicle sounds reduced hearing detection abilities in desert kangaroo rats for three weeks. Hearing reductions lead to the animals' inability to detect its predator, the sidewinder, for those three weeks. Effects are more likely where prolonged, loud noise occurs.

Alternative 2

Facility development under Alternative 2 would include grading of entry roads and construction of interpretive facilities, traffic control areas, ranger stations, parking lots, and pit toilets in some of the management areas. Therefore, construction noise exposure under

this alternative would be greater than Alternative 1, which involves minimal or no facility development. However, all construction activities would be temporary and would not affect any noise-sensitive receptors. No significant construction noise impacts are anticipated.

Under Alternative 2, the North Algodones Dunes Wilderness area would be classified as semi-primitive non-motorized, meaning no OHV activities would be allowed in this area. The ROS classification for Mammoth Wash and the Adaptive Management Area would be semi-primitive motorized, which limits OHV activities. Therefore, OHV activities would primarily occur in areas south of SR 78. Additionally, Oldsmobile Hill and Competition Hill could potentially be closed from sundown to sun up. OHV activities are not anticipated to cause increased noise levels. Furthermore, no noise-sensitive receptors are located within the project vicinity. OHV activities associated with Alternative 2 would comply with the Imperial County noise standards. Significant OHV noise impacts would not result from the implementation of Alternative 2.

It has been shown that prolonged noise can adversely affect some lizards (e.g., desert iguana, Mohave fringe-toes lizard). Laboratory studies show that dune buggy sounds, collected from the Imperial Valley, of moderate intensity and short duration cause hearing loss in Colorado Desert fringed-toed lizards. However, it is not known whether or not vehicle noise at levels and durations anticipated in the desert negatively impact flat-tailed horned lizards. Exposure to vehicle sounds reduced hearing detection abilities in desert kangaroo rats for three weeks. Hearing reductions lead to the animals' inability to detect its predator, the sidewinder, for those three weeks. Effects are more likely where prolonged, loud noise occurs.

Alternative 3

Under Alternative 3, facility developments would include grading of some entry roads and construction of an interpretive facility, traffic control areas, a parking lot, and pit toilets in some of the management areas. Because facility development activity would be less intense, construction noise exposure under this alternative would be lower than under Alternative 2. All construction activities would be temporary and would not be in the vicinity of any noise-sensitive receptors. Therefore, no significant construction noise impacts are anticipated. Under Alternative 3, the Mammoth Wash, North Algodones Dunes Wilderness, and Adaptive Management Areas would be classified as semi-primitive non-motorized, meaning no OHV activities would be allowed in these areas. Therefore, OHV activities would be confined to less than half of the overall management area. Additionally, Oldsmobile Hill and Competition Hill could possibly be closed from sundown to sun up. Overall ambient noise levels are not expected to increase as a result of OHV activities. Furthermore, no noise-sensitive receptors are located within the project vicinity. OHV activities associated with Alternative 3 would comply with the Imperial County noise standards. Significant OHV noise impacts would not result from the implementation of Alternative 3.

It has been shown that prolonged noise can adversely affect some lizards (e.g., desert iguana, Mohave fringe-toes lizard). Laboratory studies show that dune buggy sounds, collected from the Imperial Valley, of moderate intensity and short duration cause hearing loss in Colorado Desert fringed-toed lizards. However, it is not known whether or not vehicle noise at levels and durations anticipated in the desert negatively impact flat-tailed horned lizards. Exposure

to vehicle sounds reduced hearing detection abilities in desert kangaroo rats for three weeks. Hearing reductions lead to the animals' inability to detect its predator, the sidewinder, for those three weeks. Effects are more likely where prolonged, loud noise occurs.

Alternative 4

Under Alternative 4, short-term construction noise exposure would be similar to Alternative 2, which would provide the same level of facility development. All construction activities would be temporary and would not be in the vicinity of any noise-sensitive receptors. Therefore, no significant construction noise impacts are anticipated.

Under Alternative 4, only the North Algodones Dunes Wilderness area would be classified as semi-primitive non-motorized. Therefore, implementation of this alternative could result in increased OHV activity throughout the ISDRA Planning Area. However, this activity would be more dispersed due to the increase in acreage open to OHV use. Further, no sensitive noise receptors are located within the project vicinity. OHV activities associated with Alternative 4 would comply with all applicable Imperial County noise standards. Adverse noise impacts are not anticipated from implementation of this alternative.

It has been shown that prolonged noise can adversely affect some lizards (e.g., desert iguana, Mohave fringe-toes lizard). Laboratory studies show that dune buggy sounds, collected from the Imperial Valley, of moderate intensity and short duration cause hearing loss in Colorado Desert fringed-toed lizards. However, it is not known whether or not vehicle noise at levels and durations anticipated in the desert negatively impact flat-tailed horned lizards. Exposure to vehicle sounds reduced hearing detection abilities in desert kangaroo rats for three weeks. Hearing reductions lead to the animals' inability to detect its predator, the sidewinder, for those three weeks. Effects are more likely where prolonged, loud noise occurs.

Mitigation Measures

Significant adverse noise impacts are not anticipated under any of the project alternatives, including Alternative 1. No mitigation measures are required. However, BLM will enforce the State noise regulations to assist in maintaining acceptable noise level within the ISDRA.

Cumulative Effects

There are several activities within the Planning Area and general vicinity that could add to cumulative noise effects, including:

- Noise from train movements on the Union Pacific (formerly the Southern Pacific) Railroad tracks located along the east side of the Plan Area

- Noise associated with occasional recreational and support activities, especially both concentrated and dispersed OHV uses of the Plan Area and immediate vicinity

- Vehicular traffic noise on major roadways leading to the Plan Area

Intermittent military aircraft maneuvers and military weapons explosions associated with the use of the Chocolate Mountain Aerial Gunnery Range (CMAGR) located to the northwest of the Plan Area and a gunnery range north of East Mesa

Occasional military aircraft overflights associated with flight corridors located above and adjacent to the Plan Area

Military helicopter use of the Plan Area as a training ground for the use of night vision devices

Mineral exploration, including drilling by Mesquite Mine and/or Glamis Imperial under existing BLM approvals

Construction of utility lines

Construction activities, pursuit activities and medical response activities conducted by Border Patrol. These activities may include the use of a helicopter, heavy equipment and law enforcement vehicles.

Natural sources such as wind, rain, thunder, and wildlife

4.12 Air Quality

The air quality analysis presented in this section addresses anticipated air quality impacts resulting from implementation of the alternatives presented in Chapter 2 of this EIS.

Assumptions and Assessment Guidelines

The analysis addresses potential local and regional effects from motorized OHV operational sources and on-highway vehicular travel that can be expected as a result of project implementation. A discussion of the methodology used for estimating on-highway vehicle and motorized OHV emissions is provided below.

Vehicle Types

Motorized vehicles are the primary source of emissions associated with the proposed four alternative resource management plans. Typically, recreational park and open space land uses do not directly emit significant amount of air pollutants. Vehicular trips to and from these land uses, however, do emit pollutants. Further, an increase in the number of new daily vehicle trips will typically mean an increase in recreational motorized OHV activities at ISDRA.

On-road emissions result from automobile, trucks, and recreational vehicles that travel to and from each site, and are proportional to the distance of vehicle travel. Emissions were calculated based on assumed average round-trip travel distances and EMFAC7G emission factors (CARB, 1997). The emission factors were based on average vehicle speeds, ambient temperature, vehicle weight classification, and engine type. The manufacture of motor vehicles (including OHV models) that do not meet federal and California CAA requirements to reduce tailpipe emissions could be discontinued. The emission estimates do not account for potential emission reductions that would occur if vehicles are converted to clean fuels or if electric vehicles are substituted for gasoline- or diesel-fueled vehicles.

Off-highway emissions result from the operation of mobilized OHVs at the site. Off-road emissions are proportional to the length of activity. All OHV activities can be expected to vary hour-by-hour in their activity. Operational profiles are not available for these OHV activities over the course of an entire day, hour-by-hour. The estimated profiles are based on the concept of peak OHV activity. The peak hour(s) is defined as the hour(s) of the day at which maximum activity occurs. There can be one or more such peaks in a 24-hour period. For the purpose of this air quality analysis, the peak OHV activity levels would occur when an estimated 3.5 person per occupant's on-road vehicle are operating their OHV at the same hour. (Note: the average occupancy rate of on-road vehicle is 3.5 persons per vehicle for this analysis. It is acknowledged that this is a peak estimate and it is likely higher than would actually occur.) Emissions were calculated by multiplying off-road emission factors by the estimated number of OHVs in operation, and the average operating hour of each piece of OHV. It was assumed that each OHV would operate 6 hours per day. Off-highway emission factors recently published by the CARB were used to calculate emissions.

Motorized Vehicle Generated Dust

The principal pollutant of concern emitted by motorized OHV is PM₁₀ because of the relatively large quantity of PM₁₀ dust emissions disturbed by OHVs operating over unpaved surface, and the relatively low ambient air quality standard for PM₁₀. Soil disturbance activities, such as motorized vehicle travel on the sand dunes, can represent substantial sources of fugitive dust depending on the level of activity, the specific vehicle activities being conducted, and prevailing meteorological conditions. It should be noted that most of the PM₁₀ emissions are from wind erosions, which are a major source of PM₁₀ emissions throughout the ISDRA. In addition, the newly adopted PM_{2.5} standard is not yet applicable. PM₁₀ dust emissions can adversely affect sensitive receptors (i.e., people who are more susceptible to the adverse impact of air pollutants). These include the elderly, young children, and those individuals suffering from respiratory disorders. Although most dust emissions are readily filtered by human breathing passages, tiny particles can easily bypass this natural filtering system and lodge deep in the lungs. Many scientific studies have linked breathing PM to a series of significant health problems, including: aggravated asthma, increased respiratory symptoms like coughing and difficult or painful breathing, chronic bronchitis, decreased lung function, premature death. Large-diameter dust, which settles out on nearby foliage and other surfaces, is more a soiling nuisance than a potential health impact. Areas near the OHV sites would be the most susceptible to this nuisance from OHV activities.

Fugitive dust emissions would also be generated from on-highway vehicle travel over paved road that lead to the ISDRA. These fugitive dust emissions were calculated using the methodology in the *CEQA Air Quality Handbook* (SCAQMD, 1993) and *AP-42 Volume I: Stationary Point and Area Sources* (EPA, 1995). Fugitive dust emission calculations are presented in Appendix C, and a summary of emissions is presented in the discussion of alternatives in this analysis.

Evaluation Criteria

To determine the severity of impacts, a set of criteria is established for peak daily and annual average concentrations for each pollutant. Emissions below these levels are assumed to present no threat to ambient air quality. An alternative that would generate emissions in excess of these limits would result in adverse impacts to air quality in the region.

Although the Imperial County Air Pollution Control District (ICAPCD) has not developed specific guidelines for evaluating air quality impacts for proposed actions undergoing environmental review, the ICAPCD has established peak daily air pollutant emission limits that, when exceeded, indicate that a source could have an impact on ambient air quality. These emission threshold levels are shown in Table 4.12-1.

EPA sets *de minimis* conformity thresholds, and they refer to the maximum allowable increase in direct and indirect emissions between each projected year and the baseline year for each criteria pollutant in non-attainment and maintenance areas (40 CFR, Section 51.853 [b]). Emissions below these levels are presumed to conform to the SIP within the meaning of the General Conformity Rule. If the total direct and indirect emissions from a federal action would not exceed the thresholds for criteria pollutants in any year, the federal action is

deemed *de minimis* and exempted from conformity requirements. If the total emissions are equal or greater than the *de minimis* levels for the pollutant in any year, a formal conformity determination is required for that pollutant. EPA *de minimis* levels are provided in Table 4.12-1.

Table 4.12-1 Pollutant Emission Criteria

Criteria Pollutant	ICAPCD Criteria (pounds per day)	Clean Air Act <i>De Minimis</i> Levels (tons/year)
CO	550	100
NO _x	137	100
ROG	137	50
SO _x	137	100
PM ₁₀	137	100

Source: ICAPCD, 1993; EPA, 1993.

Note: California defines ROG as VOC (volatile organic compounds)

Future Baseline

Impacts of the alternatives are assessed by comparison with a future baseline scenario that serves as a benchmark for comparison. This method is used to account for impacts attributed to regional growth, independent of the individual resource management plan alternatives. Development assumptions outside the ISDRA are the same for both the future baseline and all project alternatives. The assumptions are based on current growth forecasts for Imperial County and the SSAB region.

The future baseline is defined as the scenario year 2012-2013 with no changes to interim management, which is the same as the No Action Alternative under Alternative 4. Under the Future baseline, existing attendance for the 1999-2000 season at ISDRA is assumed to increase by 5 percent annually.

Relative to air quality, a notable major emission concern is the PM₁₀ fugitive dust emissions, both natural and mechanical. Wind-blown dust emission generates approximately 173.35 tons per day (or 346,000 pounds per day) in Imperial County during the year 2000. (This does not include windblown dust from disturbed vacant land such as the ISDRA, so the actual amount of wind blown dust is greater.) Entrained dust emission from vehicles on paved and unpaved surfaces generates approximately 3.67 and 38.92 tons per day, respectively, in Imperial County during the year 2000. Any additional construction and off-road recreational activities occurring in the present and near future would increase the PM₁₀ emission beyond these already significant levels.

Regional air pollutant emissions projected under the future baseline (2012-2013) associated with motor vehicle and OHV operations are shown in Table 4.12-2. A comparison of the future baseline with the existing condition (1999-2000) is also provided.

Table 4.12-2 Estimated Annual Air Emissions Associated with the Future Baseline

Emission Source	Emissions (tons/year)				
	CO	NO _x	ROG/HC	SO _x	PM ₁₀
Future Baseline					
On-road Motor Vehicles	149.66	47.42	52.41	1.49	52.94
Off-highway Vehicles	1,086.73	428.57	64.29	9.18	2,568.24
Future Baseline Total (2012-2013)	1,236.39	476.00	116.70	10.67	2,621.19
Baseline Condition (1999-2000)	599.25	230.21	56.38	5.14	1,263.64

Note: Estimated PM₁₀ emission includes both exhaust and fugitive dust emissions.

Source: CH2M HILL, 2002

Emission estimates for peak daily vehicles were prepared using the EMFAC7G vehicle emission rate model. The estimated number of motor vehicles corresponds to projected traffic volumes for major holiday weekends (refer to Section 4.9). The number of OHVs is proportionate to the total visits provided in Table 4.1-1. Table 4.12-3 summarizes the peak daily vehicle and OHV emissions analyses for year 2012-2013.

Impacts

The following discussion addresses potential air quality impacts from both a peak daily and annual average perspective for each alternative. Peak daily impacts are related to emissions produced during the six major holiday weekends, and typically involve an increase in dust (suspended particulates) as well as OHV and motor vehicle exhaust. Annual emission impacts are related to emissions produced by OHV activities and vehicle trips over a 12-month period.

Alternative 1

Annual air pollutant emission estimates for Alternative 1 are provided in Table 4.12-4, along with a comparison to the future baseline. Because annual attendance at the ISDRA is anticipated to increase under this alternative, the annual emission results show that estimated emission levels in 2012-2013 would increase over the emission levels for the future baseline. Therefore, the total net emissions associated with this alternative would exceed the *de minimis* threshold levels. The impacts on air quality would be significant under Alternative 1 scenario.

Table 4.12-3 Estimated Peak Daily Air Emissions Associated with the Future Baseline

Emission Source	Emissions (pounds/day)				
	CO	NO _x	ROG/HC	SO _x	PM ₁₀
Halloween					
On-road Motor Vehicles	5,658.71	1,793.16	1,981.84	56.27	2,001.80
Off-highway Vehicles	11,413.89	4,501.25	675.19	96.46	11,150.37
Total	17,072.60	6,294.41	2,657.02	152.72	13,152.17
Thanksgiving					
On-road Motor Vehicles	9,699.12	3,073.50	3,396.90	96.44	3,431.11
Off-highway Vehicles	19,563.57	7,715.21	1,157.28	165.33	19,111.90
Total	29,262.69	10,788.71	4,554.18	261.77	22,543.00
New Year					
On-road Motor Vehicles	6,465.91	2,048.95	2,264.54	64.29	2,287.34
Off-highway Vehicles	13,042.03	5,143.33	771.50	110.21	12,740.92
Total	19,507.93	7,192.28	3,036.04	174.51	15,028.26
Martin Luther King's Birthday					
On-road Motor Vehicles	4,040.41	1,280.34	1,415.06	40.17	1,429.31
Off-highway Vehicles	8,149.68	3,213.96	482.09	68.87	7,961.53
Total	12,190.09	4,494.30	1,897.15	109.05	9,390.84
President's Day					
On-road Motor Vehicles	8,080.81	2,560.69	2,830.12	80.35	2,858.62
Off-highway Vehicles	16,299.36	6,427.92	964.19	137.74	15,923.05
Total	24,380.17	8,988.60	3,794.31	218.09	18,781.68
Easter					
On-road Motor Vehicles	6,465.91	2,048.95	2,264.54	64.29	2,287.34
Off-highway Vehicles	13,042.03	5,143.33	771.50	110.21	12,740.92
Total	19,507.93	7,192.28	3,036.04	174.51	15,028.26

Note: Estimated PM10 emission includes both exhaust and fugitive dust emissions.

Source: CH2M HILL, 2002

Table 4.12-4 Estimated Annual Air Emissions Associated with Alternative 1

Emission Source	Emissions (tons/year)				
	CO	NO _x	ROG/HC	SO _x	PM ₁₀
Alternative 1					
On-road Motor Vehicles	172.19	54.57	60.31	1.71	60.91
Off-Highway Vehicles	1,250.35	273.52	41.03	10.57	2,954.91
Alternative 1 Total (2012-2013)	1,422.54	322.51	95.18	7.40	120.67
Future Baseline Total (2012-2013)	1,236.39	476.00	116.70	10.67	2,621.19
Total Net Emission	186.15	71.66	17.57	1.61	394.64
<i>De Minimis</i> Thresholds	100.00	100.00	50.00	100.00	100.00

Note: Estimated PM₁₀ emission includes both exhaust and fugitive dust emissions.

Source: CH2M HILL, 2002

Emission estimates for peak daily vehicles were prepared using the EMFAC7G vehicle emission rate model. The estimated number of motor vehicles corresponds to projected traffic volumes for major holiday weekends (refer to Section 4.9). The number of OHVs is proportionate to the total visits provided in Table 4.1-1. Emission estimates for Alternative 1 and a comparison to the Future baseline are presented in Table 4.12-5.

As shown in Table 4.12-5, the peak daily emissions for CO, NO_x and PM₁₀ under this alternative would exceed the ICAPCD daily emission threshold limits.

Because Alternative 1 would result in an increase in peak daily emissions for CO, NO_x and PM₁₀, significant air quality impacts would result from implementation of this alternative.

Alternative 2

Annual air pollutant emission estimates compared with the future baseline for Alternative 2 are provided in Table 4.12-6. The annual emission results show that emissions in 2012-2013 would be lower under Alternative 2 than under the future baseline because of an anticipated decrease in visitor use under this alternative. The net change in annual emissions that would result from implementation of this alternative would be below the federal *de minimis* thresholds.

Emission estimates for peak daily vehicles were prepared using the EMFAC7G vehicle emission rate model. The estimated number of motor vehicles corresponds to projected traffic volumes for major holiday weekends (refer to Section 4.9). The number of OHVs is proportionate to the total visits provided in Table 4.1-1. Emission estimates for the Alternative 2 and a comparison to the Future Baseline are presented in the Table 4.12-7. As shown in Table 4.11-7, the net peak daily emissions for Alternative 2 would be below the criteria established by ICAPCD. Therefore, no adverse air quality impact is expected to result under this alternative during major holiday weekends.

Table 4.12-5 Estimated Peak Daily Air Emissions Associated with Alternative 1

Emission Source	Emissions (pounds/day)				
	CO	NO _x	ROG/HC	SO _x	PM ₁₀
Halloween					
On-road Motor Vehicles	6,508.33	2,062.39	2,279.40	64.71	2,302.35
Off-highway Vehicles	13,127.60	5,177.08	776.56	110.94	12,824.52
Total	19,635.94	7,239.47	3,055.96	175.65	15,126.88
Future Baseline Total	17,072.60	6,294.41	2,657.02	152.72	13,152.17
Net Emissions	2,563.34	945.06	398.94	22.93	1,974.71
Thanksgiving					
On-road Motor Vehicles	11,158.45	3,535.94	3,907.99	110.95	3,947.35
Off-highway Vehicles	22,507.11	8,876.04	1,331.41	190.20	21,987.48
Total	33,665.56	12,411.99	5,239.40	301.15	25,934.83
Future Baseline Total	29,262.69	10,788.71	4,554.18	261.77	22,543.00
Net Emissions	4,402.87	1,623.28	685.22	39.38	3,391.83
New Year					
On-road Motor Vehicles	7,437.31	2,356.77	2,604.75	73.95	2,630.98
Off-highway Vehicles	15,001.39	5,916.04	887.41	126.77	14,655.05
Total	22,438.70	8,272.81	3,492.15	200.72	17,286.03
Future Baseline Total	19,507.93	7,192.28	3,036.04	174.51	15,028.26
Net Emissions	2,930.77	1,080.53	456.11	26.21	2,257.77
Martin Luther King's Birthday					
On-road Motor Vehicles	4,650.12	1,473.55	1,628.60	46.24	1,645.00
Off-highway Vehicles	9,379.50	3,698.96	554.84	79.26	9,162.95
Total	14,029.62	5,172.51	2,183.44	125.50	10,807.95
Future Baseline Total	12,190.09	4,494.30	1,897.15	109.05	9,390.84
Net Emissions	1,839.53	678.21	286.29	16.45	1,417.11
President's Day					
On-road Motor Vehicles	9,300.50	2,947.19	3,257.29	92.48	3,290.09
Off-highway Vehicles	18,759.53	7,398.13	1,109.72	158.53	18,326.42
Total	28,060.03	10,345.31	4,367.01	251.01	21,616.52
Future Baseline Total	24,380.17	8,988.60	3,794.31	218.09	18,781.68
Net Emissions	3,679.86	1,356.71	572.70	32.92	2,834.84
Easter					
On-road Motor Vehicles	7,437.31	2,356.77	2,604.75	73.95	2,630.98
Off-highway Vehicles	15,001.39	5,916.04	887.41	126.77	14,655.05
Total	22,438.70	8,272.81	3,492.15	200.72	17,286.03
Future Baseline Total	19,507.93	7,192.28	3,036.04	174.51	15,028.26
Net Emissions	2,930.77	1,080.53	456.11	26.21	2,257.77
ICAPCD Criteria	550.00	137.00	137.00	137.00	137.00

Note: Estimated PM₁₀ emission includes both exhaust and fugitive dust emissions. Source: CH2M HILL, 2001

Table 4.12-6 Estimated Annual Air Emissions Associated with Alternative 2

Emission Source	Emissions (tons/year)				
	CO	NO _x	ROG/HC	SO _x	PM ₁₀
Alternative 2					
On-road Motor Vehicles	136.11	43.13	47.67	1.35	48.15
Off-highway Vehicles	988.33	389.76	58.46	8.35	2,335.68
Alternative 2 Total (2012-2013)	1,124.43	432.89	106.13	9.71	2,383.83
Future Baseline Total (2012-2013)	1,236.39	476.00	116.70	10.67	2,621.19
Total Net Emission	- 111.96	- 43.11	- 10.57	- 0.96	- 237.36
<i>De Minimis</i> Thresholds	100.00	100.00	50.00	100.00	100.00

Note: Estimated PM₁₀ emission includes both exhaust and fugitive dust emissions.

Source: CH2M HILL, 2001

Alternative 3

Annual air pollutant emission estimates compared with the future baseline are provided in Table 4.12-8. The annual emission results show that emissions in 2012-2013 would be lower under Alternative 3 than under the future baseline because of an anticipated decrease in visitor use under this alternative. This decrease in annual emissions resulting from implementation of this alternative would be less than under the Alternative 2, and would be below federal *de minimis* thresholds.

Emission estimates for peak daily vehicles were prepared using the EMFAC7G vehicle emission rate model. The estimated number of motor vehicles corresponds to projected traffic volumes for major holiday weekends (refer to Section 4.9). The number of OHVs is proportionate to the total visits provided in Table 4.1-1. Emission estimates for Alternative 3 and a comparison to the Future baseline are presented in the Table 4.12-9.

As shown in Table 4.11-9, the net peak daily emissions for the Alternative 3 would not exceed the criteria established by ICAPCD. Therefore, no adverse air quality impact is expected under this alternative during major holiday weekends. These impacts would be less than those anticipated under Alternative 2.

Table 4.12-7 Estimated Peak Daily Air Emissions Associated with the Alternative 2

Emission Source	Emissions (pounds/day)				
	CO	NO _x	ROG/HC	SO _x	PM ₁₀
Halloween					
On-road Motor Vehicles	4,616.60	1,462.93	1,616.86	45.90	1,633.14
Off-highway Vehicles	9,311.88	3,672.29	550.84	78.69	9,096.90
Total	13,928.48	5,135.22	2,167.70	124.60	10,730.04
Future Baseline Total	17,072.60	6,294.41	2,657.02	152.72	13,152.17
Net Emissions	-3,144.12	-1,159.19	-489.32	-28.12	-2,422.13
Thanksgiving					
On-road Motor Vehicles	7,912.40	2,507.32	2,771.14	78.67	2,799.05
Off-highway Vehicles	15,959.68	6,293.96	944.09	134.87	15,591.21
Total	23,872.08	8,801.28	3,715.23	213.55	18,390.26
Future Baseline Total	29,262.69	10,788.71	4,554.18	261.77	22,543.00
Net Emissions	-5,390.61	-1,987.43	-838.95	-48.22	-4,152.74
New Year					
On-road Motor Vehicles	5,274.24	1,671.33	1,847.18	52.44	1,865.79
Off-highway Vehicles	10,638.38	4,195.42	629.31	89.90	10,392.77
Total	15,912.62	5,866.74	2,476.49	142.34	12,258.55
Future Baseline Total	19,507.93	7,192.28	3,036.04	174.51	15,028.26
Net Emissions	-3,595.31	-1,325.54	-559.55	-32.17	-2,769.71
Martin Luther King's Birthday					
On-road Motor Vehicles	3,296.07	1,044.47	1,154.37	32.77	1,166.00
Off-highway Vehicles	6,648.33	2,621.88	393.28	56.18	6,494.83
Total	9,944.40	3,666.35	1,547.66	88.96	7,660.83
Future Baseline Total	12,190.09	4,494.30	1,897.15	109.05	9,390.84
Net Emissions	-2,245.69	-827.95	-349.49	-20.09	-1,730.01
President's Day					
On-road Motor Vehicles	6,594.50	2,089.70	2,309.57	65.57	2,332.83
Off-highway Vehicles	13,301.41	5,245.63	786.84	112.41	12,994.31
Total	19,895.91	7,335.32	3,096.42	177.98	15,327.15
Future Baseline Total	24,380.17	8,988.60	3,794.31	218.09	18,781.68
Net Emissions	-4,484.26	-1,653.28	-697.89	-40.11	-3,454.53
Easter					
On-road Motor Vehicles	5,274.24	1,671.33	1,847.18	52.44	1,865.79
Off-highway Vehicles	10,638.38	4,195.42	629.31	89.90	10,392.77
Total	15,912.62	5,866.74	2,476.49	142.34	12,258.55
Future Baseline Total	19,507.93	7,192.28	3,036.04	174.51	15,028.26
Net Emissions	-3,595.31	-1,325.54	-559.55	-32.17	-2,769.71
ICAPCD Criteria	550.00	137.00	137.00	137.00	137.00

Note: Estimated PM₁₀ emission includes both exhaust and fugitive dust emissions. Source: CH2M HILL, 2002

Table 4.12-8 Estimated Annual Air Emissions Associated with Alternative 3

Emission Source	Emissions (tons/year)				
	CO	NO _x	ROG/HC	SO _x	PM ₁₀
Alternative 3					
On-road Motor Vehicles	123.72	39.20	43.33	1.23	43.77
Off-highway Vehicles	898.37	354.29	53.14	7.59	2,123.09
Alternative 3 Total (2012-2013)	1,022.09	393.49	96.47	8.82	2,166.86
Future Baseline Total (2012-2013)	1,236.39	476.00	116.70	10.67	2,621.19
Total Net Emission	-214.30	-82.51	-20.23	-1.85	-454.33
<i>De Minimis</i> Thresholds	100.00	100.00	50.00	100.00	100.00

Note: Estimated PM₁₀ emission includes both exhaust and fugitive dust emissions.

Source: CH2M HILL, 2002

Alternative 4

Annual air pollutant emission estimates for the Alternative 4 are provided in Table 4.12-10, along with a comparison to the future baseline. Because annual attendance at the ISDRA is not anticipated to change under this alternative, the annual emission results show that emissions in 2012-2013 would be the same as under the Future baseline. Therefore, the total net emission associated with this alternative would be zero, and would not exceed the federal *de minimis* thresholds.

Emission estimates for peak daily vehicles were prepared using the EMFAC7G vehicle emission rate model. The estimated number of motor vehicles corresponds to projected traffic volumes for major holiday weekends (refer to Section 4.9). The number of OHVs is proportionate to the total visits provided in Table 4.1-1. Emission estimates for Alternative 4 and a comparison to the Future baseline are presented in the Table 4.12-11.

As shown in Table 4.12-11, the net peak daily emissions for Alternative 4 would result in the same regional emissions impacts as the Future baseline. Therefore, the estimated net emissions would be zero, and would not exceed the ICAPCD daily emission threshold limits. The air quality impacts would be somewhat less than those anticipated under Alternative 1, and greater than those under the Alternatives 2 and 3.

Table 4.12-9 Estimated Peak Daily Air Emissions Associated with Alternative 3

Emission Source	Emissions (pounds/day)				
	CO	NO _x	ROG/HC	SO _x	PM ₁₀
Halloween					
On-road Motor Vehicles	4,677.10	1,482.10	1,638.05	46.51	1,654.54
Off-highway Vehicles	9,433.91	3,720.42	558.06	79.72	9,216.11
Total	14,111.01	5,202.52	2,196.11	126.23	10,870.65
Future Baseline Total	17,072.60	6,294.41	2,657.02	152.72	13,152.17
Net Emissions	-2,961.59	-1,091.89	-460.91	-26.49	-2,281.52
Thanksgiving					
On-road Motor Vehicles	8,016.12	2,540.19	2,807.46	79.71	2,835.74
Off-highway Vehicles	16,168.88	6,376.46	956.47	136.64	15,795.58
Total	24,185.00	8,916.64	3,763.93	216.34	18,631.32
Future Baseline Total	29,262.69	10,788.71	4,554.18	261.77	22,543.00
Net Emissions	-5,077.69	-1,872.07	-790.25	-45.43	-3,911.68
New Year					
On-road Motor Vehicles	5,346.26	1,694.15	1,872.41	53.16	1,891.26
Off-highway Vehicles	10,783.65	4,252.71	637.91	91.13	10,534.69
Total	16,129.92	5,946.86	2,510.31	144.29	12,425.95
Future Baseline Total	19,507.93	7,192.28	3,036.04	174.51	15,028.26
Net Emissions	-3,378.01	-1,245.42	-525.73	-30.22	-2,602.31
Martin Luther King's Birthday					
On-road Motor Vehicles	3,339.02	1,058.09	1,169.42	33.20	1,181.19
Off-highway Vehicles	6,734.96	2,656.04	398.41	56.92	6,579.47
Total	10,073.99	3,714.13	1,567.82	90.12	7,760.67
Future Baseline Total	12,190.09	4,494.30	1,897.15	109.05	9,390.84
Net Emissions	-2,116.10	-780.17	-329.33	-18.93	-1,630.17
President's Day					
On-road Motor Vehicles	6,681.19	2,117.17	2,339.94	66.43	2,363.50
Off-highway Vehicles	13,476.26	5,314.58	797.19	113.88	13,165.13
Total	20,157.46	7,431.75	3,137.12	180.32	15,528.64
Future Baseline Total	24,380.17	8,988.60	3,794.31	218.09	18,781.68
Net Emissions	-4,222.71	-1,556.85	-657.19	-37.77	-3,253.04
Easter					
On-road Motor Vehicles	5,346.26	1,694.15	1,872.41	53.16	1,891.26
Off-highway Vehicles	10,783.65	4,252.71	637.91	91.13	10,534.69
Total	16,129.92	5,946.86	2,510.31	144.29	12,425.95
Future Baseline Total	19,507.93	7,192.28	3,036.04	174.51	15,028.26
Net Emissions	-3,378.01	-1,245.42	-525.73	-30.22	-2,602.31
ICAPCD Criteria	550.00	137.00	137.00	137.00	137.00

Note: Estimated PM₁₀ emission includes both exhaust and fugitive dust emissions. Source: CH2M HILL, 2002

Table 4.12-10 Estimated Annual Air Emissions Associated with Alternative 4

Emission Source	Emissions (tons/year)				
	CO	NO _x	ROG/HC	SO _x	PM ₁₀
Alternative 4					
On-road Motor Vehicles	149.66	47.42	52.41	1.49	52.94
Off-highway Vehicles	1,086.73	428.57	64.29	9.18	2,568.24
Alternative 4 Total (2012-2013)	1,236.39	476.00	116.70	10.67	2,621.19
Future Baseline Total (2012-2013)	1,236.39	476.00	116.70	10.67	2,621.19
Total Net Emission	0.00	0.00	0.00	0.00	0.00
<i>De Minimis</i> Thresholds	100.00	100.00	50.00	100.00	100.00

Note: Estimated PM₁₀ emission includes both exhaust and fugitive dust emissions.

Source: CH2M HILL, 2002

Conformity Statement

The 1990 amendments to the federal CAA require federal agencies to ensure that their actions conform to the applicable SIP. The SIP is a plan that provides for implementation, maintenance, and enforcement of the NAAQS, and it includes emission limitations and control measures. Conformity to a SIP, as defined in the CAA, means conforming to the purposes of the SIP to reduce the severity and number of violations to the NAAQS and achieve timely attainment of such standards.

Pursuant to Section 176(c) of the Clean Air Act, as amended by the 1990 amendments, and the General Conformity Rule at 40 CFR Parts 51 and 93, the air quality analysis establishes that the emissions associated with the proposed project are below the *de minimis* levels and are not regionally significant because they do not exceed 10 percent of the total emission inventory for any criteria pollutants in the SSAB. If the difference between emissions of criteria pollutants associated with Alternative 2 and those of Alternative 1 would be below specified the *de minimis* levels and Alternative 2 emissions would not be regionally significant (i.e., greater than 10 percent of the emissions budget of the Air Basin), then no further evaluation is needed for the pollutant in any year. If the net emissions would be equal to or greater than the *de minimis* levels for the pollutant in any year, a formal Conformity Determination is required for that pollutant. For example, if Alternative 1 becomes the preferred action, then the net emissions under Alternative 1 would exceed *de minimis* levels for CO, NO_x and PM₁₀. Implementation of Alternative 1 may adversely impact the attainment of the SIP.

Implementation of the Alternatives 2, 3, and 4 would not adversely affect the attainment of the SIP. Consequently, Alternative 2 for these alternatives is exempt from the conformity determination requirement of the General Conformity Rule.

Table 4.12-11 Estimated Peak Daily Air Emissions Associated with Alternative 4

Emission Source	Emissions (pounds/day)				
	CO	NO _x	ROG/HC	SO _x	PM ₁₀
Halloween					
On-road Motor Vehicles	5,658.71	1,793.16	1,981.84	56.27	2,001.80
Off-highway Vehicles	11,413.89	4,501.25	675.19	96.46	11,150.37
Total	17,072.60	6,294.41	2,657.02	152.72	13,152.17
Future Baseline Total	17,072.60	6,294.41	2,657.02	152.72	13,152.17
Net Emissions	0.00	0.00	0.00	0.00	0.00
Thanksgiving					
On-road Motor Vehicles	9,699.12	3,073.50	3,396.90	96.44	3,431.11
Off-highway Vehicles	19,563.57	7,715.21	1,157.28	165.33	19,111.90
Total	29,262.69	10,788.71	4,554.18	261.77	22,543.00
Future Baseline Total	29,262.69	10,788.71	4,554.18	261.77	22,543.00
Net Emissions	0.00	0.00	0.00	0.00	0.00
New Year					
On-road Motor Vehicles	6,465.91	2,048.95	2,264.54	64.29	2,287.34
Off-highway Vehicles	13,042.03	5,143.33	771.50	110.21	12,740.92
Total	19,507.93	7,192.28	3,036.04	174.51	15,028.26
Future Baseline Total	19,507.93	7,192.28	3,036.04	174.51	15,028.26
Net Emissions	0.00	0.00	0.00	0.00	0.00
Martin Luther King's Birthday					
On-road Motor Vehicles	4,040.41	1,280.34	1,415.06	40.17	1,429.31
Off-highway Vehicles	8,149.68	3,213.96	482.09	68.87	7,961.53
Total	12,190.09	4,494.30	1,897.15	109.05	9,390.84
Future Baseline Total	12,190.09	4,494.30	1,897.15	109.05	9,390.84
Net Emissions	0.00	0.00	0.00	0.00	0.00
President's Day					
On-road Motor Vehicles	8,080.81	2,560.69	2,830.12	80.35	2,858.62
Off-highway Vehicles	16,299.36	6,427.92	964.19	137.74	15,923.05
Total	24,380.17	8,988.60	3,794.31	218.09	18,781.68
Future Baseline Total	24,380.17	8,988.60	3,794.31	218.09	18,781.68
Net Emissions	0.00	0.00	0.00	0.00	0.00
Easter					
On-road Motor Vehicles	6,465.91	2,048.95	2,264.54	64.29	2,287.34
Off-highway Vehicles	13,042.03	5,143.33	771.50	110.21	12,740.92
Total	19,507.93	7,192.28	3,036.04	174.51	15,028.26
Future Baseline Total	19,507.93	7,192.28	3,036.04	174.51	15,028.26
Net Emissions	0.00	0.00	0.00	0.00	0.00
ICAPCD Significance Thresholds	550.00	137.00	137.00	137.00	137.00

Note: Estimated PM₁₀ emission includes both exhaust and fugitive dust emissions. Source: CH2M HILL, 2002

Mitigation Measures

Currently Rule 800 Fugitive Dust Control Requirements for Control of Fine Particulate Matter (PM-10) as approved by the Imperial County Air Pollution Control District includes exempt activities under section E. Exemption E.9 states “The recreational use of public lands, including but not limited to Off-Road Vehicles, all-terrain vehicles, trucks, cars, motorcycles, motorbikes or motor buggies.” This exempts BLM’s ISDRA from Rule 800. However, ICAPCD has informed BLM of its intent to update their PM₁₀ SIP. It is anticipated that the updated SIP will require BLM to develop and implement a dust control plan for the land that it manages in Imperial County. The following measures could be implemented to reduce potential air quality impacts as BLM’s Dust Control Plan:

Apply nontoxic chemical soil stabilizers, according to manufacturers' specifications, to all active staging areas (unpaved graded areas for OHV and visitors’ parking, wash road and road to Dune Buggy Flats).

Wet roads prior to heavy use weekends.

Pave parking lots and access roads at least 100 feet onto the site from main road or highway, as use and funding allows.

Reduce traffic speeds on all unpaved roads near other users to 15 mph or less to reduce health affects to other users.

Sweep all paved streets once a day if visible sand materials are carried to adjacent streets (recommend water sweepers with reclaimed water).

Configure new access roads and parking lots to minimize traffic interference and idle exhaust emission.

Restrict motorized access to vendor areas by flagging, signing and law enforcement as required.

Provide temporary traffic control during peak OHV activities to improve traffic flow (e.g., flag person).

Initially some or all of these activities could be conducted to reduce the amount of dust in the ISDRA without monitoring activities. The ICACPD is in the process of revising the SIP. Once EPA approves this plan, then BLM, in conjunction with EPA and ICACPD through implementation of the SIP, will determine the need for monitoring. It is anticipated that air monitors may be located in the Wilderness Area and the Adaptive Management Areas. At the request of a regulatory agency, monitors will be installed at the weather stations previously identified in this EIS to provide additional information to direct these mitigation measures.

Cumulative Effects

Gateway of the Americas: The Gateway of the Americas Specific Plan Area (Gateway) is a 1,775-acre master-planned industrial and commercial complex owned by private parties and federal, state, and local agencies. Retail shopping, business offices, and lodging would be developed in response to the traffic from the Port of Entry. Secondary impacts from the Gateway project include short-term air quality impacts in the SSAB as a result of construction activities associated with the development of industrial, commercial, and transportation-related services.

Imperial County prepared the Final EIR for the Gateway Specific Plan in 1997 (Imperial County Planning Department, 1997). The project is in various stages of development in the initial construction phase (Phase 1). Phase 2 is expected to continue for 20 to 40 years (IID and BOR, 2002).

North Baja Pipeline, LLC: North Baja Pipeline, LLC proposes to build and operate a new natural-gas pipeline system that would transport 500 million cubic feet per day of natural gas from a proposed interconnection with an existing El Paso Natural Gas Company pipeline in Ehrenberg, Arizona to the U.S. and Mexico border. The North Baja Pipeline Project includes construction of roughly 80 miles of pipe, a compressor station, two new meter stations, and other ancillary facilities.

Secondary impacts from the North Baja Pipeline project include short-term air quality impacts in the SSAB as a result of construction activities and later due to maintenance activities. The Federal Energy Regulatory Commission (FERC), the CSLC, and the BLM jointly prepared a DEIS/EIR for the proposed project in July 2001. A Final EIS/EIR was released in the summer of 2002. A record of decision has been signed. The construction phase of this project is completed as the ISDRA EIS is being finalized.

Coachella Valley Water Management Plan: The Coachella Valley Water District (CVWD) prepared the Coachella Valley Water Management Plan to provide an overall program for managing its surface and groundwater resources in the future (CVWD, 2000).

Implementation of the Water Management Plan would involve construction of various facilities for treatment of water and development of additional policies to implement increased conservation. The potential environmental impacts of the Water Management Plan have not been fully assessed at this time, but short-term air quality impacts in the SSAB as a result of construction activities are anticipated.

The draft CVWD Water Management EIR is being prepared by CVWD. A Notice of Preparation (NOP) was originally filed with the State Clearinghouse in November 1995. A revised NOP was issued in March 2000. It is anticipated that the EIR, once completed, will include mitigation measures to reduce and/or avoid air quality impacts.

Imperial Irrigation District Water Conservation Plan: The Imperial Irrigation District (IID) Water Conservation and Transfer Project and Habitat Conservation Plan (Water

Conservation and Transfer Project and HCP) consists of the conservation by IID of up to 300,000 acre-feet of Colorado River water per year, and the subsequent transfer of all or a portion of the conserved water to San Diego County Water Authority (SDCWA), CVWD, and/or the Metropolitan Water District of Southern California (Metropolitan). The water conservation program includes the voluntary participation of Imperial Valley landowners and tenants to implement on-farm conservation methods that could include alternative water management techniques, water delivery system alternatives, conveyance facility lining, or other measures.

IID and BOR are the lead agencies for the preparation of a Draft EIR/EIS for the IID Water Conservation and Transfer Project and HCP, which was released to the public in January 2002. A final EIR/EIS is expected to be completed in 2002.

As a result of the water conservation program, implementation of the Water Conservation and Transfer Project is anticipated to result in short-term and long-term impacts to air quality in the SSAB. The Draft EIR/EIS includes mitigation measures to reduce and/or avoid air quality impacts from construction activities in the Imperial Valley. However, other indirect air quality impacts in the SSAB are considered significant and unavoidable. Biological resources impacts to desert species, such as the flat-tailed horned lizard, Peirson's milk-vetch, and desert tortoise also would occur. However, the proposed HCP covers incidental take of these species through avoidance strategies and mitigation measures. In addition, depending on the alternative selected, the project could result in adverse socioeconomic impacts in Imperial County. Mitigation measures to avoid such impacts are anticipated to be implemented if an alternative that would result in adverse socioeconomic impacts were selected as the preferred alternative.

Salton Sea Restoration Plan: The Salton Sea Restoration Project includes actions to stabilize the elevation and reduce the salinity of the Salton Sea, pursuant to the Salton Sea Reclamation Act of 1998 [Public Law (PL) 105-372]. To implement this directive, the Salton Sea Authority, as the California lead agency under CEQA, and BOR, as the federal lead agency under NEPA, released a Draft EIS/EIR in January 2000 that evaluated proposed Salton Sea Restoration Project alternatives. A revised Draft EIS/EIR, including different alternatives and revised modeling and impact analysis, is currently being prepared. Although environmental documentation has not been completed on the Salton Sea Restoration Project, it is anticipated that short-term air quality impacts in the SSAB would occur as a result of construction activities associated with project implementation. It is also anticipated that the Draft EIS/EIR, once completed, will include mitigation measures to reduce and/or avoid air quality impacts.

Coachella Canal Lining: This project involves the lining of the remaining 33.4 miles of the Coachella Canal, which currently loses approximately 32,350 acre-feet per year through seepage. This canal lining project will adversely affect biological resources by loss of riparian and wetland habitat in Salt Creek and adjacent to the canal, which are supported by canal leakage. Affected desert species include the desert tortoise. The canal lining project

will also have short-term air quality impacts in the SSAB associated with construction within the right-of-way of the Coachella Canal.

A revised and updated Draft EIS/EIR for the Coachella Canal Lining Project was circulated for public review by Reclamation and CVWD in September 2000. A Final EIS/EIR was released in April 2001, which was certified by CVWD in May 2001. The EIR/EIS includes mitigation measures to avoid and/or compensate for air quality and biological resources impacts.

This project involves lining the 23-mile reach of the existing, unlined canal. The canal lining project will have temporary air quality impacts in the SSAB associated with construction within the proposed right-of-way of the All American Canal. Temporary and permanent impacts to desert scrub and sand dune habitat would result from construction activities. Special-status species known to inhabit or likely to inhabit these desert habitats are flat-tailed horned lizard, Colorado Desert fringe-toed lizard, giant Spanish needles, Peirson's milk-vetch, Wiggin's croton, sand food, and Andrew's dune scarab beetle.

All American Canal Lining: A Final EIS/EIR for the All American Canal Lining Project was released in March 1994. The All American Canal Lining Project EIR/EIS includes mitigation measures to avoid and/or compensate for air quality and biological resources-related impacts to riparian and marsh vegetation, fish in the canal, desert habitat, and special-status species associated with desert habitats.

U. S. Border Patrol Activities: The U. S. Border Patrol drives vehicles, grades unpaved roads, drags unpaved roads and constructs devices such as cameras to assist in the apprehension of undocumented immigrants. These activities can have a negative affect on air quality.

4.13 Hazardous Materials

Assumptions And Assessment Guidelines

The assessment of impacts assumes implementation of those measures incorporated into the alternatives or required by regulation that avoid or reduce potential adverse impacts. This assessment evaluates the potential for the alternatives to result in hazardous materials-related impacts to the public or the environment in the vicinity of the ISDRA. An alternative would be expected to have an adverse effect if it would:

Create a significant hazard by exposing the public to hazardous materials at levels exceeding the range of risk generally considered to be acceptable to EPA or other federal or state agencies as a result of being located on or proximate to a known hazardous materials site

Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials

Effects Common To All Alternatives

The environmental database search discussed in Section 3.13 provided the location of and information on known hazardous materials sites or activities that conceivably could cause impacts (e.g., direct, indirect, or both) to human health and the environment that are located at or near the ISDRA. The ISDRA is located approximately 20 miles from known hazardous materials sites so there is an exceedingly low potential for and probability of affecting public health and safety due to hazardous materials and wastes. This would be true for all alternatives. As a result, specific potential adverse effects associated with these hazardous materials sources are not addressed further in this section.

The primary potential source of hazardous materials-related impacts at the ISDRA would derive from the short-term use of varying amounts and quantities of materials which typically would be associated with OHV and camping related equipment brought onsite by visitors. The typical types of hazardous materials used by visitors at the ISDRA include propane, gasoline, and oil. The potential hazards typically would include accidental releases of propane, fuels, oil, and grease from camping or OHV related equipment or from accidents involving the use of flammable materials for cooking. The release of propane would dissipate into the air. The release of other materials would most likely be to the sandy soil. It is unlikely that a release would impact groundwater, due to the depth to the groundwater and the small amount of material that is used by any user. It is also not likely that a release would impact the surface water, since the surface water that is near the ISDRA is in a canal on one edge of the ISDRA. The amounts of material brought to the ISDRA would be expected to vary under different alternatives, primarily due to the number of anticipated visitors. The probability of accidental spills of fuels, oil, and grease is expected to be directly proportionate to visitation. However, even considering the maximum visitor supply, none of the alternatives likely would involve a release greater than *de-minimis* conditions. *De-minimis* conditions are those "...that generally do not present a material risk of harm to

public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies” (Holland and Knight LLP, 2001).

Mitigation Measures

BLM will encourage recreational users to be prepared to take the proper response to releases of hazardous materials through an education program. The education program will include providing information about the potential impact of large spills on the canal system and groundwater. ISDRA law enforcement will be trained to provide immediate assessment of spills that could impact the canal system and to relay information to the National Spill Response system, Imperial Irrigation District, Coachella Valley Water District, and the Bureau of Reclamation in the event of a large spill that could impact the canal system. BLM will provide education materials relating to the storage, disposal, and use of hazardous materials related to OHV recreational use.

Cumulative Effects

None identified.

4.14 Geology and Soils

This section evaluates the potential impacts of Alternatives 1, 2, 3, and 4 on the geology and soils, as well as energy and mineral resources of the ISDRA planning area. Assessment methods are presented for soil and geologic conditions, seismic activity, and energy and mineral resources. Impacts due to seismic activity and related to energy and mineral resources are also discussed.

Assumptions And Assessment Guidelines

Soil and Geologic Conditions

An impact resulting from implementation of an alternative would be considered adverse if it does not meet the applicable criteria set forth by regulation, as defined in Title 23, CCR, Division 3, Chapter 15, Title 14, CCR, Division 7, and 40 CFR Part 258, Subpart B (Location Restrictions), or if an impact would expose people or workers in the ISDRA to major geologic hazards. This would include the presence of geologic conditions such as unstable or compressible soils and liquefaction that would contribute to the destruction or severe damage (e.g., destabilization) of structures during a geologic event and could endanger the lives of persons in the ISDRA. In addition, impacts would result if implementation of the alternative would affect the continued enjoyment, study, or interpretation of a unique geologic feature, either by degrading or limiting access to the feature.

The geologic effect of OHVs on ISDRA has been discussed by Norris (1995), and is characterized primarily by increased erosion and the creation of vehicle tracks. Although the visual affects of the OHV tracks may dissipate after a windstorm, the lasting effects of the vehicle erosion impacts on mobile sand dunes lasts longer. The lasting impact is the lack of vegetation and therefore reduced wildlife and insect species. These lasting impacts can be repaired naturally in a few years if no further vehicle activities occur in the impacted area. Unvegetated or sparsely vegetated dunes are for the most part active, dynamic systems that will fairly promptly re-establish their pristine form if left relatively undisturbed and if the sources of sand are not adversely affected in some way. Relict or vegetated dunes would take longer to recover their original character than mobile, active dunes. Better-developed soils and stable surfaces within the Planning Area, particularly those of the distal portions of the alluvial fans extending into the Plan Area from the east, would take even longer to regain their natural aspect. In these areas of more stable surfaces, soil compaction would also be an effect of OHV activities. Evidence would suggest that some of these gravelly, stable surfaces might not regain their predisturbance character for centuries (Steiger and Webb, 2000). In this light, it is important to note that impact analyses for this EIS refer to a baseline that is the current condition of the ISDRA, and current conditions include the plentiful vehicle tracks on these desert surfaces in most areas, with the exception of the North Algodones Dunes Wilderness Area and the Mammoth Wash Management Area. These tracks are part of the current surface geologic conditions of the Recreation Area.

Energy and Mineral Resources

An alternative would have an adverse impact on leasable or locatable mineral resources if the loss of existing mineral resources could not be offset by domestic reserves. Impacts to mineral resources would be considered adverse if the alternative would affect the existing or potential future economic production of a mineral resource, either by limiting access to the resource or by degrading the quality of the resource. It would also be an adverse effect if implementation of the alternative would eliminate access to a potential mineral resource that has been determined by a regulating agency to be rare, unique, or regionally significant.

Seismic Hazards

The ISDRA lies within a seismically active area. A seismic hazard in the vicinity of the ISDRA planning area would be considered adverse if, as a result of the occurrence of the maximum probable earthquake event, structures (i.e., bridges or buildings) built within the ISDRA were to fail causing potential injury and property damage. When state and federal regulations conflict, the more stringent regulation will be used to establish impact significance. Severe seismic hazards would include the presence of an active fault onsite or the presence of other geologic conditions that would directly or indirectly endanger the lives of persons in the ISDRA.

Effects Common to All Alternatives

Seismic Hazards

In seismically active regions, the potential exists for seismic damage to existing facilities and structures. Construction of future facilities and structures is proposed under all alternatives; consequently, the potential for seismic damage to current and future construction exists. To encourage public safety, any structures or facilities built will be constructed according to standard construction codes of practice for structures in the State of California in seismically active regions. Implementation of any alternative would not substantially alter the potential for seismic impact that exists: no adverse impact would result.

Energy Resources

Lease arrangements for energy and mineral resources could be limited or eliminated to minimize the potential of conflicting uses of the ISDRA. Access to portions of the Glamis and dunes known geothermal resource areas would not be limited, resulting in the potential for conflict between OHV use and geothermal development. However, implementation of any alternative would not substantially alter the potential for conflict that exists under baseline conditions. Therefore, no adverse impact would result.

Mineral Resources

Mining claims and sand and gravel operations will be limited to the Glamis Management Area. However, implementation of any alternative would not substantially alter the potential for mineral operations that exists under interim management conditions. Therefore, no adverse impact would result.

Alternative 1

Geology and Soils

The same conditions that applied immediately prior to instituting the temporary closures would apply under Alternative 1, the No Action Alternative. A larger area of the ISDRA would be open to OHV activity, and use intensity would be greater than under any other alternative. Alternative 1 does not consider controls on camping and OHV use in the Planning Area, so a larger area is available for recreational use. In addition, Alternative 1 does not place any limitation on the visitor supply of the ISDRA, so the use intensity would be greatest under this alternative. Therefore, erosion impacts resulting from OHV activities would be greater for Alternative 1 than under any other alternative. Currently areas of very high use show significant impacts due to OHV use. Other areas such as the Adaptive Management Area and the Mammoth Wash Area are significantly less impacted. Implementation of this alternative could substantially alter the potential for erosion damage and soil compaction in the future as the visitor supply increases without limitation. Adverse impacts are likely.

Alternative 2

Geology and Soils

This alternative would open a larger portion of the ISDRA to OHV use than under Alternative 3, and less than Alternatives 1 and 4. The Planning Area and Adaptive Management Area have use restrictions under this alternative. However, the intensity of use allowed in all areas opened to OHV recreational activities would be lower in Alternative 2 than in Alternative 4, and higher than in Alternative 3. Therefore, the erosion impacts and soils compaction would be greater than under Alternative 3 and less than under Alternatives 1 and 4. The area available for OHV use would be less than existing conditions, and the intensity of use would be more constrained. Currently areas of very high use show significant impacts due to OHV use. Other areas such as the Adaptive Management Area and the Mammoth Wash Area are significantly less impacted. By controlling the future use and intensity of use in the less impacted areas, and directing high intensity use to the already impacted areas, the potential for additional erosion damage and soil compaction in the future should decrease. Therefore, adverse impacts are not anticipated.

Alternative 3

Geology and Soils

This alternative would open a smaller area of the ISDRA to OHV use and would limit the intensity of that use more than under Alternatives 1, 2, or 4. Therefore, the impact resulting from OHV activities, erosion and soil compaction would be less under this alternative than under any of the other alternatives. Additionally, use would be directed to the areas that are already heavily impacted. Significant adverse impacts are not anticipated.

Alternative 4

Geology and Soils

This alternative would open a larger portion of the Plan Area to OHV use than under Alternatives 2 and 3, and less than under Alternative 1. Furthermore, the intensity of use as would be allowed by the ROS classes would be greater under Alternative 4 than under any of

the other action alternatives. Therefore, impacts to soils and erosion would be greater than under any of the other action alternatives. Currently areas of very high use show significant impacts due to OHV use. Other areas such as the Adaptive Management Area and the Mammoth Wash Area are significantly less impacted. By allowing the intensity of use identified in this alternative the potential for additional erosion damage and soil compaction in the future will increase, especially in the areas that currently are not significantly impacted. Therefore, significant adverse impacts are anticipated

Mitigation Measures

To encourage public safety, any facilities built will be constructed according to construction codes of practice for structures in the State of California in seismically active regions. This requirement will mitigate for earthquake hazards in the ISDRA.

Cumulative Effects

The U, S. Border Patrol routinely drives throughout the ISDRA to apprehend undocumented aliens. This activity contributes to the soil erosion and compaction.

BLM has involvement in several mining operations near the ISDRA: Glamis, Mesquite, and community pits. This contributes to cumulative impacts on mineral resources and geology and soils.

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CHAPTER 5.0

COORDINATION & CONSULTATION

Public Scoping Meetings

The scoping process for the project was designed to solicit input from stakeholders, the public, and other interested parties on the issues related to the development of a revised RAMP. The BLM initiated the public involvement in 1998. Subsequent public involvement activities were conducted in September 2001.

The BLM conducted three public planning meetings and seven public scoping meetings between June 1998 and February 2000 to solicit input from the public. Three subsequent scoping meetings were conducted during September 2001. The meetings were held at the following locations and dates. The number of attendees at each meeting is noted in parentheses for the last public scoping meeting:

<u>Initial Public Planning Meetings</u>	<u>Initial Public Scoping Meetings</u>	<u>Subsequent Public Scoping Meetings</u>
1) San Diego, California June 16, 1998	1) Yuma, Arizona January 10, 2000	1) El Centro, California (50 attendees) September 6, 2001
2) Phoenix, Arizona June 22, 1998	2) Long Beach, California January 12, 2000	2) Phoenix, Arizona (300 attendees) September 25, 2001
3) Anaheim, California June 30, 1998	3) Cahuilla, California January 14, 2000	3) San Diego, California (400 attendees) September 27, 2001
	4) Phoenix, Arizona January 25, 2000	
	5) San Diego, California January 27, 2000	
	6) Brawley, California February 3, 2000	
	7) El Centro, California February 7, 2000	

The initial Notice of Intent (NOI) to Prepare an EIS pursuant to NEPA was published in the *Federal Register* on October 10, 2001. A subsequent NEPA NOI was published for the additional scoping meetings conducted in September 2001. Publishing public notices in newspapers of general circulation provided additional notification of the action. The public scoping meetings were advertised in seven local newspapers: Imperial Valley Press, Desert Sun, San Diego Union Tribune, Los Angeles Times, El Sol del Valle, Arizona Republic and The Yuma Daily Sun. Other tools used to communicate with interested parties include “The Dunes Newsletter” and postcard announcements of meeting dates, the BLM website and the NOI publication.

Public Review of the Draft EIS

The draft EIS and RAMP were released to the public for a 90 day public comment period, ending June 28, 2002. During this public review period 6 public meetings were held to explain the EIS and RAMP to the public and to allow public comment. The meetings are summarized in the table below including approximate number of participants:

Location	Date
El Centro, CA (92 participants)	April 9, 2002
Long Beach, CA (810 participants)	April 11, 2002
Phoenix, AZ (720 participants)	April 15, 2002
Brawley, CA (86 participants)	April 18, 2002
Yuma, AZ (356 participants)	April 23, 2002
San Diego, CA (522 participants)	April 25, 2002

In addition, several workshops were held to explain the documents and the review process to small groups of the public. No comments were accepted at the workshops.

BLM received 7,339 comments on the draft EIS and RAMP from the public through public meetings, electronic letters and paper letters. 2,778 of the public comments were from members of the public located in California. 585 were from residents of Arizona. A significant number of comments (over 100 each) were also received from residents of Colorado, Florida, Illinois, Massachusetts, Michigan, New Jersey, New Mexico, New York, Ohio, Oregon, Pennsylvania, Texas, Washington and Wisconsin. Over 1000 unique issues were identified from these comments. A copy of the types of issues identified in these letters and BLM’s response to these issues is included in Appendix A. A copy of each letter and BLM’s response to each issue identified is available from BLM on a cd.

U. S. Fish & Wildlife Service Consultation

Prior to implementation of an updated management plan, formal consultation with the USFWS was completed to determine impacts to species listed as threatened or endangered under the federal ESA. Species that are known to occur, or have the potential to occur at the ISDRA, which are listed as threatened under the federal ESA, are the Peirson's milk-vetch and desert tortoise.

Pursuant to Section 7 of the ESA, the USFWS has issued a Biological Opinion for the Preferred Alternative, based on an analysis of that alternative as documented in a Biological Assessment and with additional information as requested by USFWS.

Consultation with the State Historic Preservation Officer

Formal consultation with the State Historic Preservation Office was initiated by letter in accordance with the Programmatic Memorandum of Agreement Among the Advisory Council on Historic Preservation, the Bureau of Land Management, and the California State Historic Preservation Officer Regarding the California Desert Conservation Area (1980), and the State Protocol Agreement between the California State Director of the Bureau of Land Management and the California State Historic Preservation Officer (1998).

Consultation with Native Americans

To comply with Executive Orders regarding Government-to-Government relations with Native Americans, formal and informal contacts were made with a number of tribal entities.

Seven Native American tribes with heritage associations with the dunes were contacted in the spring of 2002 for the purpose of conducting consultation. The seven Native American tribes were: the Quechan tribe, the Colorado River Indian Tribes, the Fort Mojave Indian Tribe, the Cocopah Indian Tribe, the eleven Kummeyaay reservations, the Torres-Martinez Desert Cahuilla, and the Morongo Band. In concert with consultation, tribal elders and representatives of these tribes were interviewed concerning heritage values at the dunes.

BLM commissioned a Cultural Landscape Study of the Imperial Sand Dunes that included interviews with elders and representatives of these seven tribes. Members of these tribes were interviewed about present and past connections with the dunes to identify traditional cultural properties and assess the dunes as a cultural landscape. The results of the interviews indicate that the dunes have some cultural significance for contemporary Native Americans, but do not meet the criteria set forth under the National Register of Historic Places. All groups interviewed expressed concern about damage to the dunes landscape by recreational use.

Other Consultations

A number of agencies and interests, including local, state and federal have been involved in the development of this plan. BLM coordinated with and included any agency that expressed an interest in the plan. In addition, BLM's Desert Advisory Council developed a set of resolutions regarding the Imperial Sand Dunes Recreation Area Management Plan in December 2001. California Department of Fish and Game and BLM discussed relevant issues during the development of this EIS.

Coordination of Comments on the draft EIS

BLM received numerous comments on the draft EIS. A summary of these comments and BLM's response is included in Appendix A. Due to the number of comments, the complete set of comments cannot be included in this EIS. A copy of the complete set of comments is available on a cd by contacting BLM.

CHAPTER 6.0

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Draft Environmental Impact Statement

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CHAPTER 8.0

GLOSSARY AND LIST OF ACRONYMS

AADT or ADT	Average Annual Daily Traffic volume
AASHTO	Association of American State Highway and Transportation Officers
Access Easement	Legal permission granted by the owner of a property to another entity, to enter or cross the property for specified purposes.
ACEC	Area of Critical Environmental Concern. An identified area requiring special management attention to protect important biological, geological, or cultural resources.
APCD	Air Pollution Control District
ASA	American Sand Association
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
ATV	All-terrain vehicle. A three- or four-wheeled vehicle equipped with low-pressure tires and a seat straddled by the rider.
BA	Biological Assessment
Biological Opinion	A document prepared by the USFWS and NMFS stating their collective opinion as to whether or not a federal action will likely jeopardize the continued existence or adversely modify the habitat of a listed threatened or endangered species.
BLM	Bureau of Land Management
BMP	best management practice
BO	Biological Opinion
BOR	Bureau of Reclamation
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards. California Ambient Air Quality Standards established by the California Air Resources Board.
Caltrans	California Department of Transportation
Candidate Species	A plant or animal species that is undergoing status review by the USFWS to be listed as threatened or endangered.
CARB	California Air Resources Board
CCR	California Code of Regulations
CDCA	California Desert Conservation Area Plan. Completed in 1980, this Congressionally mandated document provides long-range, general guidance for management of all BLM-administered public lands in the California Desert, including the Imperial Sand Dunes.

CDFG	California Department of Fish and Game
CDPA	California Desert Protection Act
CEDD	California Economic Development Department
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive, Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Commission
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHP	California Highway Patrol
CIWMA	California Integrated Waste Management Act
Class C (Controlled)	The most restrictive of the four Desert Plan multiple use classes, assigned only to wilderness study areas that have been preliminarily recommended as suitable for wilderness designation by Congress.
Class I (Intensive)	Areas where concentrated use of land and resources is intended. Includes areas set aside for intensive off-highway vehicle recreation. This class is suitable for development of facilities for intensive recreational use.
Class L (Limited)	Provides for low-intensity, carefully controlled use. Usually assigned to areas of particularly sensitive or important natural or cultural resources. Facilities that provide for resource protection may be constructed in this class.
Class M (Moderate)	Intended to provide a balance between resource protection and use. Recreation facility developments may be constructed in this class.
CLETS	California Law Enforcement Telecommunication System
Closed Area	An area where motorized vehicles are not allowed. Nonmotorized uses such as hiking and horseback riding are usually allowed and encouraged in Closed Areas, except in present and former military bombing ranges, which are closed to all forms of human entry. The perimeter of all Closed Areas is posted with signs to inform the public of the types of uses allowed.
cm	centimeter
CMAGR	Chocolate Mountain Aerial Gunnery Range
CNDDB	California Natural Diversity Data Base. The CNDDB is a computerized inventory of information on the general location and condition of California's rare and threatened animals, plants, and natural communities maintained by the CDFG.
CNEL	Community Noise Equivalent Level
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society. CNPS is a professional society of plant biologists, scientists, and associated professionals that has accumulated a statewide database on California native plants and their distribution.
CO	carbon monoxide

CRHR	California Register of Historical Resources
Critical Habitat	Specific areas with physical or biological features that are imperative to the continued survival and conservation of a listed species. These areas may require special management and are generally designated in <i>Federal Register</i> notices.
CSLC	California State Lands Commission
Cultural Resources	Building, district, structure, site, or object significant in history, architecture, archaeology, culture, or science.
CVWD	Coachella Valley Water District
dB	decibel
dBA	decibel A-weighted
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
DOI	Department of Interior
DOT	Department of Transportation
EA	Environmental Assessment. A document prepared to predict and evaluate the effect of an action on the natural environment and human communities.
EDD	Employment Development Department
EDR	Electronic database report
EIS	Environmental Impact Statement. A federal environmental decision making report prepared pursuant to the National Environmental Policy Act (NEPA).
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
EMS	emergency medical service
Endangered Species	An animal or plant species that is in danger of extinction throughout all of a significant portion of its range (as defined in The Endangered Species Act Amendments of 1982). The U.S. Fish and Wildlife Service regularly use this definition. The State of California and the California Native Plant Society subscribe to a slightly different definition.
Endemic	Native to a certain region.
EPA	United States Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
ERNS	Emergency Response Notification System
ESA	Endangered Species Act
Eutrophication	The process by which waters rich in mineral and organic nutrients promote a proliferation of plant life, especially algae, and reduce the dissolved oxygen content, causing the extinction of other organisms.
Existing Setting	Existing biological, physical, social, and economic conditions of an area to which changes are proposed, either directly or indirectly, by human actions.
FERC	Federal Energy Regulatory Commission

FESA	Federal Endangered Species Act
FICC	Federal Interagency Communication Center
FINDS	Faculty Index System
FLPMA	Federal Land Policy Management Act of 1976. The Congressional Act that directs BLM to manage the public lands according to the principles of multiple use and sustained yield. The California Desert Conservation Area and the development of the Desert Plan resulted from Section 601. Section 603 required the BLM to review roadless areas for potential inclusion in the National Wilderness Preservation System, and mandated interim management protection of wilderness study areas.
Gateway	Gateway of the Americas Specific Plan Area
GIS	geographic information system
GPS	global positioning system
Green Sticker Fund	A fund generated by the State of California through collection of off-highway vehicle “green sticker” registration fees, 1 percent of state gasoline taxes, and fines from violations at State Vehicular Recreation Areas. Grants from the fund are made available to federal, state, and local governmental entities to acquire, develop, operate, and maintain OHV recreation areas.
Green Sticker	Evidence of registration with the State of California Department of Motor Vehicles. All OHVs are required to display it.
GWSI	Groundwater Site Inventory
Habitat	(1) – Specific parameters of physical conditions used by a single species, a group of species, or a large community. The major components of habitat are generally considered to be food, water, cover, and living space. (2) – The natural living space of an organism.
HCM	Highway Capacity Manual
ICAPCD	Interstate Imperial County Air Pollution Control District
ICO	issue, concern, and opportunity
IID	Imperial Irrigation District
ISDRA	Imperial Sand Dunes Recreation Area
Known Geothermal Resource Area	An area in which the geology, nearby discoveries, competitive interest, or other evidence would, in the opinion of the Secretary of the Interior, convince those with experience in the field that the prospects for extraction of geothermal steam or associated geothermal resources are good enough to warrant expenditures of money for that purpose. Major portions of the Glamis KGRA and the Dunes KGRA overlap the Imperial Sand Dunes Recreation Area.
kV	kilovolt

Lead Agency	The agency initiating and overseeing the preparation of an EIS and/or EIR.
LEO	Law enforcement officer. LEO in the BLM responsible for protecting public safety and resources within the United States' 264 million acres of BLM-managed public land.
Limited Use Area	An area in which motor vehicles are restricted to approved routes. Restrictions may vary among individual Limited Use Areas.
LOS	Level of Service existing for roadway segments.
MBTA	Migratory Bird Treaty Act
Metropolitan	Metropolitan Water District of Southern California
MOU	Memorandum of Understanding
mph	miles per hour
MUC	multiple use classification. A classification system developed as part of the Desert Plan, with guidelines describing the types of land uses and resource management techniques appropriate to each class. Most lands in the California Desert Conservation Area have been assigned to one of the four multiple use classes: Class C, L, M, or I. Small acreages, notably those proposed for sales or withdrawal to other agencies, remain unclassified.
NAAQS	National Ambient Air Quality Standards. EPA established the NAAQS to protect public health and welfare from the effects of air pollution.
NCIC	National Crime Information Center
NECO	Northern and Eastern Colorado Desert Coordinated Ecosystem Management Plan
NEMO	Northern and Eastern Colorado Coordinated Management Plan
NEMO Plan	Northern and Eastern Mojave Plan
NEPA	National Environmental Policy Act
NESHAPS	National Emissions Standards for Hazardous Air Pollutants. The federal and state laws and regulations define a group of pollutants called "hazardous air pollutants," "toxic air contaminants," or "air toxics." These pollutants are regulated by the NESHAPS section of the federal Clean Air Act, various state laws and regulations, state air toxics acts (e.g., AB 1807, AB 2588, and SB 1731 programs), and Imperial County Air Pollution Control District (APCD) Regulations XI and XII.
NHPA	National Historical Preservation Act
NLETS	National Law Enforcement Telecommunication System
NO ₂	nitrogen dioxide
NOI	Notice of Intent
NOP	Notice of Preparation
NO _x	oxides of nitrogen
NPA	National Programmatic Agreement
NPS	National Park Service
NRHP	National Register of Historic Places

O ₃	ozone
OHV Designation	Public lands designated for off-highway vehicle use. Lands in the California Desert Conservation Area are designated as “Open,” “Closed,” or “Limited” for OHV use.
OHV	Off-highway Vehicle. A general term referring to all types of vehicles capable of operating on roads that are not maintained. These include motorcycles, ATVs, dune buggies, and four-wheel-drive vehicles.
Open Area	A place in which motor vehicles may travel freely (i.e., cross-country travel is permitted).
P	Primitive. An ROS class designation that characterizes an area as an essentially unmodified natural environment of fairly large size.
Pb	Chemical notation for lead.
Plank Road	A one-lane wooden road that was the first automobile thoroughfare to cross the Imperial Sand Dunes between 1914 and 1926. Remnants of the Plank Road are now designated as an Area of Critical Environmental Concern (ACEC).
PM ₁₀	respirable particulate matter with a diameter of less than 10 microns
PRC	Public Resources Code
R	Rural
RAMP	Recreation Area Management Plan. A plan prepared for recreation areas requiring special management.
RCRA	Resource Conservation and Recovery Act
RN	Roaded-Natural. An ROS class designation characterizing an area as a predominantly natural-appearing environment with moderate evidence of the sights and sounds of humans.
ROD	Record of Decision
ROG	reactive organic gas
ROS	Recreation Opportunity Spectrum. A land delineation system commonly used by federal land management agencies to address the need for a range of recreational opportunities within their planning areas.
Rural (R)	An ROS class designation that characterizes a natural environment that has been modified substantially by development of structures, vegetative manipulation, or pastoral agricultural development.
RV	Recreational Vehicle. Categorically, this term describes large, self-contained camping vehicles such as motorhomes and travel trailers.
SARA	Superfund Amendments and Reauthorization Act
SCAQMD	South Coast Air Quality Management District
SDAB	San Diego Air Basin
SDCWA	San Diego County Water Authority
Semi-Primitive Motorized (SPM).	An ROS class designation that characterizes an area as a predominantly natural or natural-appearing environment of moderate

to large size. Use of local primitive or collector roads with predominantly natural surfaces and trails suitable for motorbikes is permitted.

Semi-Primitive Non-Motorized (SPNM). An ROS class designation that characterizes an area as a predominantly natural or natural-appearing environment of moderate to large size. Motorized recreation use is not permitted.

SHPO State Historic Preservation Officer

SIP State Implementation Plan

SO₂ sulfur dioxide

SO_x sulfur oxide

SPM Semi-Primitive Motorized

SPNM Semi-Primitive Non-Motorized

SR State Route

SSAB Salton Sea Air Basin

T&E species Threatened and endangered species. This broad definition is considered when writing and implementing policy.

T/E threatened/endangered

TCP Traffic Control Plan

Threatened Species An animal or plant species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range (as defined in the Endangered Species Act Amendments of 1982). This is the definition used by the U.S. Fish and Wildlife Service. The State of California and the California Native Plant Society define the term slightly differently.

TOA Thomas Olsen and Associates

TRT technical review team

U Urban

Urban (U) A ROS class designation characterizing an area as a substantially urbanized environment, although the background may have natural-appearing elements.

URTD upper respiratory tract disease

USACE United States Army Corps of Engineers

USBP United States Border Patrol

USC United States Code

USFS United States Forest Service

USFWS United States Fish and Wildlife Service

USGS United States Geological Survey

USMC United States Marine Corps

UST underground storage tank

Visitor Supply Maximum number of visitors that could occur at ISDRA while maintaining the designated ROS class.

VRM	Program Visual Resource Management Program. A BLM-developed system used to evaluate the visual resources of a given area to determine what degree of protection, rehabilitation, or enhancement is desirable and possible.
VUD	Visitor Use Day. One VUD is equal to 12 hours spent by one person in the pursuit of recreation.
WEMO	West Mojave Coordinated Management Plan
West Mojave Plan	West Mojave Habitat Conservation Plan
WHA	wildlife habitat area
Whoop-De-Do's	A series of closely spaced undulations in the surface of an off-highway vehicle trail, created by the tires of the vehicles. Whoop-de-do's make the trail difficult to use for some types of vehicle, particularly large RVs.
WIS	Wilderness Implementation Strategy
WSA	Wilderness Study Area. A roadless area of public lands that the BLM has determined possess the wilderness qualities described in the Wilderness Act of 1964. Congress established WSAs to study the suitability of areas of possible designation as wilderness.

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APPENDIX A

PUBLIC COMMENTS AND RESPONSES SUMMARY

Public Review of DEIS

On March 28, 2002, BLM released for public comment a Draft Environmental Impact Statement (DEIS) which would amend the California Desert Conservation Area (CDCA) Plan by revising the Imperial Sand Dunes Recreation Area RAMP. The BLM published a DEIS analyzing alternative management strategies which could be employed in the revised RAMP, as well as a Proposed RAMP embodying BLM's preferred alternative. The BLM requested public comment on the DEIS and proposed RAMP over a 90-day period which ended on June 28, 2002. In addition, BLM provided overviews and workshops on the DEIS to individuals, interest groups, local governments, BLM's Desert Advisory Council, and tribal councils. BLM initiated consultation with the Quechan and six other tribes and commissioned a Cultural Landscape Study of the Imperial Sand Dunes that included interviews with elders and representatives of these tribes.

Notice of the public review period was published in the *Federal Register* on March 29, 2002, by the Environmental Protection Agency. The public was notified of the following dates and venues for public meetings through news releases, public service announcements, and the BLM California and El Centro Field Office websites. Public comments were received at these meetings and were recorded by court reporters. The public meetings were held between the hours of 7:00 p.m. and 10:00 p.m. local time on the following dates at the following locations:

April 9, 2002 El Centro, CA
City Council Chambers
1275 Main Street
El Centro, CA

April 11, 2002 Long Beach, CA
The Grand
4101 East Willow Street
Long Beach, CA

April 15, 2002 Phoenix, AZ
Phoenix College
1202 West Thomas Road
Phoenix, AZ

April 18, 2002 Brawley, CA
City Council Meeting Room
225 A Street
Brawley, CA

April 23, 2002 Yuma, AZ
Yuma Civic and Convention Center
1440 W Desert Hills Drive
Yuma, AZ

April 25, 2002 San Diego, CA
Marriott Mission Valley
8757 Rio San Diego Drive
San Diego, CA

Public Comments Analysis

Over 7,350 responses were received through oral testimony or written correspondence during the comment period. The U.S. Forest Service (USFS) Content Analysis Team (CAT) was contracted to analyze and synthesize public comments into concise “public concern” statements. This information was then organized in a report designed to provide a narrative summary of comments and a comprehensive list of public concerns raised during the comment period. The public concern list identifies specific requests and common themes expressed by individuals and groups. These requests and themes are organized into a condensed format to facilitate the BLM’s review of public sentiments and identify possible actions. One or more illustrative sample statements accompany each public concern. Sample statements support the public concerns, and may also impart the author’s suggestion(s) on how, when, or where the concern should be addressed. Moreover, it should be noted that sample statements are just that—samples. Any given public concern may be supported by only one or as many as several thousands of supporting comments. Only those comments that offer significant variations of a public concern are noted.

The Content Analysis Team documented and analyzed public comments on the ISDRA DEIS using a process called “content analysis.” This process provides a systematic method of compiling and categorizing the full range of public viewpoints and concerns. Content analysis is intended to facilitate good decision-making by helping the planning team to

clarify, adjust, or incorporate technical information in preparing the FEIS/Proposed RAMP. In the analysis process, each response (letter, verbal testimony, etc.) was given a unique identifying number, which allows analysts to link specific comments to original letters. Respondents' names and addresses were then entered into a project-specific database program, enabling the creation of a complete mailing list of all respondents. The database is also used to track pertinent demographic information, such as federal, state, tribal, county, and local governments or government associations; business and industry groups; recreational organizations; and preservation, conservation and multiple use organizations.

BLM's project management personnel reviewed the list of public concern statements and associated sample statements and assigned appropriate staff to each public concern. In making these assignments it became clear that some of the public concerns could be combined. Assigned staff evaluated the public concern statements and associated sample statements. They made revisions to the FEIS and Proposed RAMP as appropriate, and prepared written response to public concern statements that are presented below. The BLM staff who responded to the public concerns evaluated each public concern of its merit and did not know how many people shared any particular public concern. It is important for the public and project team members to understand that this process does not treat comments as votes and thus cannot sway decision makers toward the opinion of individuals, groups, or pluralities. Content analysis ensures that every comment is considered with equal merit in the decision process.

Responses to public concerns are provided below. In reviewing the public concerns and responses, readers should note the following:

- To the extent that two or more public concern statements are the same or very similar, the comments are grouped together and addressed in one response.
- For public concern statements that were characterized as applause, no response was prepared.
- For comments which only cast a preference for a particular alternative or proposal with no justification, no response was prepared.
- For public concern statements for areas well beyond the geographic range of this plan and/or subjects not pertinent to this plan, no response was prepared.

The large number of responses received made it impractical to publish every single public concern or comment submitted in this document. BLM attempted to include representative public concerns and comments on all major subjects in this summary. Redundant material was not included to assist readability and maintaining a manageable size to the FEIS. A complete list of public concerns, comments and BLM responses is available from BLM by request.

The public concern statements that follow are grouped by general subject. Choice was necessary in placing some statements into groups. Therefore, the reader is encouraged to review all the groupings to fully understand public concerns on particular subjects. It should be noted that the public concern statements that follow are a representative summary only

and do not represent all public concerns or all public comments submitted. The subject groups are:

- Planning and Management
- Endangered Species Act and Affected Environment
- Visitor Use
- Vendors
- Law Enforcement
- Infrastructure

Responses to Public Comments

Planning and Management

#1 Public Concern: The BLM should prioritize multiple -use management, balance all values and uses, and ensure the public's right to access public lands.

Public Comment: *Keep as much land open to recreation as possible. This will actually lead to lower levels of impact. I support a sensible multiple use philosophy that allows for responsible motorized travel. Closures are a bad choice. More managed land for recreational use is the prudent choice. (#783)*

Public Comment: *Making areas off-limits, shutting down areas at times of the day and night, limiting campsite size, requiring permits—this has no effect on the biodiversity of this area. This is only about a socialistic land grab to restrict public rights to public land. This is public land. Public access is what is needed. (#5853)*

Public Comment: *Efforts by environmental, whacko extremists to close the Imperial Dunes area to off-road vehicle use is nothing more than another effort by these people to lock the public out of public lands! As members of the "public," people who drive off-road vehicles in this area have every right to use the land for legitimate recreational purposes! So far as I can determine, off-road vehicle use poses no substantive threat to any plant or animal in this area. In fact, Imperial Dunes is one of the few areas where people can pursue the legitimate recreation of driving off-road in a way which is both safe to people and the environment. I urge you to do everything possible to open all of the Imperial Dunes area to the public for vehicular recreational use. The "public" has a right to use "public" lands! (#8204)*

Public Comment: *Why is BLM calling this plan a Recreation Area Management Plan? The dunes are more than just recreation. They are also a natural environment. BLM should do a more general management plan that balances all aspects of management, including natural values, rather than favoring recreation. (#5844)*

Public Comment: *The BLM should provide the maximum amount of recreation opportunities that the natural resources will allow. Camping and OHV use should be encouraged and supported with adequate facilities. (#7941)*

BLM Response: The Federal Land Policy Act requires BLM to use and observe the principles of multiple use in developing land use plans for public lands. Multiple use is a concept that requires that public lands and their resource values be managed in a way that best meets the present and future needs of the people. Multiple use involves a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources. BLM will manage the ISDRA for wilderness, conservation of species and habitats, OHV recreation and a variety of recreation programs.

#2 Public Concern: The BLM's Preferred Alternative for managing the ISDRA should be consistent with the environmental protection emphasis of the California Desert Conservation Area Plan.

Public Comment : BLM's preferred alternative is also the contrary of the California Desert Conservation Area (CDCA) Plan Recreation Element, as summarized on pages 3-3 to 3-4 of the DEIS. The CDCA Plan speaks of "emphasizing dispersed undeveloped use," a "minimum of recreation facilities," and "protect desert resources," hardly the recreation emphasis of the proposed action; thus the proposed action is inconsistent with the CDCA Plan guidance for recreation. (#8009)

Public Comment: It is not appropriate for BLM to reopen the closed areas to ORV activity. BLM must comply with the California Desert Conservation Area Plan and FLPMA. The ISDRA must be managed to afford protection to the desert's fragile ecosystems, and to prevent "undue degradation." (#8051)

BLM Response: BLM believes the Preferred Alternative is consistent with the California Desert Conservation Plan and largely reflects decisions made in the California Desert Conservation Area Plan over 20 years ago. During preparation of the Desert Plan, BLM assigned “Multiple-Use Classes” to the recreation area. The classes are based on resource sensitivity and types of users in the area. Much of the recreation area was identified as “Intensive Use” which provides for concentrated use of land and resources to meet human needs. Recreation activities involving high densities are permitted.

#3 Public Concern: The BLM should develop alternatives that emphasize the benefits of OHV closures.

Public Comment : We recommend that the BLM develop a new range of reasonable alternatives based on a redrafted Purpose and Need that provide a more intensive role for ORV closures and properly emphasizes the various benefits that accrue to the land and the public from such closures. (#8052)

BLM Response: The Federal Land Policy Act requires BLM to use and observe the principles of multiple use in developing land use plans for public lands. Multiple use is a concept that requires that public lands and their resource values be managed in a way that best meets the present and future needs of the people. Multiple use involves a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources. BLM will manage the ISDRA for

resource conservation, and meeting the current and future recreational use needs. Alternatives which emphasize the benefits of OHV closure were included in the analysis.

#4 Public Concern: The BLM should not open additional areas to OHV recreation.

Public Comment : *I would like to voice my opinion against expansion of OHV use of the dunes. The fact that some dunes users recklessly break existing rules, and either use or threaten violence against enforcement personnel and others, shows that they cannot be trusted to abide by any agreements, and do not deserve any expansion of their so-called "rights" to drive on the dunes. The concept of ecosystem preservation is a well-established and widely accepted principle whose merit is self-evident in this case. (#941)*

BLM Response: The preferred alternative in the EIS decreases the amount of open OHV area and camping area as compared to the no action alternative. The temporary closures agreed to in November 2000, received concurrence with the understanding that the RAMP and EIS would address the special status species issues. In order to meet the BLM's multiple use mandate, public lands in the ISDRA will be managed as open, limited, closed, and designated under a range of classes from the recreation opportunity spectrum. These multiple designations allow BLM to provide a quality motorized and non-motorized recreational experience, as well as meet its conservation goals and requirements.

#5 Public Concern: The Final EIS should address the environmental impacts that might require more restrictive recreational use levels.

Public Comment : *In terms of environmental documentation, we believe the EIS would benefit from a more detailed discussion of potential consequences that will occur if proposed use levels are exceeded or monitoring identifies a need for more restrictive management to protect a particular resource. The information provided is vague on this point, often referring to actions to be considered rather than identifying specific thresholds or consequences. (#8047)*

BLM Response: Management of visitor supply can occur whenever the identified goals of the ISDRA are not met. These goals range from the protection of sensitive, threatened and endangered species, air quality, soil and water quality, law enforcement and health and safety, natural and scenic values, and meeting multiple use and recreation experience objectives. Biological and recreational thresholds and trigger resets have been identified in the FEIS that will determine specific actions that may restrict recreational use if triggered. Appendix B provides the methodology to monitor species of concern in the ISDRA. Primary goals for the ISDRA regarding biological resources include the maintenance of viable populations of all native species and maintaining habitat connectivity throughout the ISDRA. Visitor supply will be closely monitored and managed using the ROS system and multiple land use designations and management areas. The visitor capacities identified in the FEIS are based on the amount of visitors the various management areas can sustain and continue to meet ROS objectives. Should use increase to the point that the 15% or 20% triggers are activated, actions shall be taken to ensure ROS management objectives are met. Actions considered may include limiting access to the ISDRA or management areas and better

educating and dispersing visitor use to non-peak periods. Extensive monitoring of natural and biological resources, health and safety, recreation experiences, and the amount and distribution of visitors will allow BLM to effectively manage the ISDRA (see Appendix B of the FEIS to review the monitoring plan and how BLM will manage visitor use).

#6 Public Concern: The BLM should not consider the current condition of the ISDRA to represent baseline geological conditions.

Public Comment: *EPA is also concerned about continuing habitat degradation, habitat fragmentation, and wilderness trespass associated with OHV use. We commend BLM for proposing strategies to address these issues through ROS designations and increased law enforcement, but we believe that the BLM has missed an opportunity to propose specific restoration activities to address past impacts, such as rutting, which continue to degrade the environment and invite future degradation. We note that the DEIS (at page 4-105) treats the current condition of the ISDRA, including a plentiful vehicle tracks on these desert surfaces in most areas to be part of the baseline geologic conditions. (#8047)*

BLM Response: Existing conditions of the ISDRA, which may contain vehicle tracks in open areas, have been used to represent baseline conditions. The natural restoration time of vehicle impacts on sand dunes can vary greatly depending on a number of conditions. Sand does not compact significantly (heavy equipment would normally cause more compaction than vehicles commonly used in the Dunes). The recovery of sandy areas used by vehicles can be relatively quick, as demonstrated by the closed area near Buttercup.

#7 Public Concern: The BLM should acknowledge that the time it takes for the natural restoration of sand dunes can vary.

Public Comment : *The assumption of; "Vehicle erosion impacts on mobile sand dunes can be repaired naturally in a few years if no further vehicle activities occur in the impacted area." This statement we believe is false, a mobile sand dune can be repaired in hours with a good strong wind, not years. (#8298)*

Public Comment: *A hobby is only a hobby, but a habitat is a livelihood for many things. The compaction damage from one ride, off the trails, on a dirt bike on your standard upland desert can take years to heal, and that can only occur if the riders are removed. The ecosystem and geology in the dunes are much more fragile. We loved to ride, but stopped when we realized too many careless, or uncaring riders only rode for speed and not for enjoyment of the desert and the sport. (#265)*

BLM Response: The natural restoration time of vehicle impacts on sand dunes can vary greatly depending on a number of conditions. A good example of this is the presently closed area near Buttercup. Sand does not compact like clay/silt and vehicle marks will diminish naturally (typically within months, not years, under normal conditions).

#8 Public Concern: The BLM should address the cumulative impacts of drought and increased water consumption.

Public Comment : *According to the BLM, "the chief impacts on water resources resulting from enactment of any of the alternatives would be to increase or decrease water supply demand by visitors to the ISDRA." The BLM never addresses the cumulative impact of drought and increased visitor water consumption there. (#8051)*

BLM Response: All water used by visitors is brought in from outside the ISDRA. Water is not available to visitors within the ISDRA. Water withdrawals are limited to a small amount of non-potable water at the Cahuilla Ranger Station.

#9 Public Concern: The BLM should recognize that displacing OHV impacts to other ecosystems would cause far more environmental damage than to the ISDRA.

Public Comment : *In attending most of the desert planning meetings over the past 23 years, there is one major issue that has received little or no attention. That issue is: If the desert areas are closed, where will the 250,000 or more current users go and what environmental damage will they cause in these other areas? It is my firm belief that the consequences to other areas will be much greater than the minimal damage now occurring in the desert, especially at Glamis. Please consider the impact of displacing the 249,000 responsible users as well as the 1,000 abusers. I have suggested to the "environmentalists" that these people will have a much greater negative impact on the beaches and forests than they do on the Glamis area. If the 1,000 abusers are displaced, they will surely create ten or one hundred times the environmental damage to other more environmentally sensitive area. The desert for the most part doesn't burn, the forests do! There are only a few plants and animals that may be environmentally affected by the abusers in the desert, but think of the major impact in other areas. While discussing this with an apparent environmental leader at a BLM meeting, the environmentalist brought up an even more compelling argument, that they are concerned about the impact of displacing the abusers to Baja California. Imagine the impact they will have there with virtually no law enforcement and vast areas to destroy that won't be discovered for a long time due to the remoteness. (#7829)*

BLM Response: Cumulative impacts have been rewritten in the FEIS to reflect OHV displacement. The FEIS would sustain the current use at or near levels during the past year. Limitations on use are not unique to the BLM. The National Park Service, Forest Service, as well as various state agencies, may place limits on any given recreation area that is intended to protect resources and allow quality recreation at the same time. The FEIS only addresses the ISDRA.

#10 Public Concern: The BLM should consider the increased use of four -stroke vehicles in air quality data reports.

Public Comment : *We have invested a lot of time and money into our desert equipment. We made sure to buy four-stroke vehicles that are very environmentally*

friendly. Your report states that the air quality is poor (4-101, Section 4.11, Air Quality) yet it is based on old two-stroke vehicles and not what is currently being sold today. (#7880)

BLM Response: BLM recognizes that four-stroke vehicles emit significantly less engine emissions. The impacts identified in the FEIS represent a worst-case scenario.

#11 Public Concern: The revised RAMP should address air pollution statistics from adjacent agriculture and non -OHV contributors.

Public Comment : *The pollutants contained within the dust swirled up by tires of various types of off-highway vehicles are not solely . . . from the vehicles operated by the recreationists that typically utilize the ISDRA. This is another fact that is hidden by the skewed figures and misrepresentation within the RAMP and supporting documentation. In 1975, when driving at speed through the dunes, you rarely saw dust. Now, with over 30 years of west to east winds blowing topsoil and agricultural products from the El Centro and Bakersfield farms, and the ash from crop fires and local industries, particles contained within rain, and the dust created from construction projects within the surrounding region; you see dust regularly. This also adds to the quantity and type of vegetation growing within the ISDRA. As a comparison, you can go to the Oregon Sand Dunes, which has no agricultural areas within the regular air patterns; though the area is concentrated, and has more vegetation, you see little dust at the driest times of year. The amount of dust and pollutants that can be attributed to agriculture and non-OHV contributors needs to be addressed and compared for these statistics to be fair and accurate. (#7243)*

BLM Response: BLM agrees that air quality is an important issue that needs to be addressed through joint efforts. BLM is cooperating with the Imperial County Air Pollution Control District and EPA to develop an effective air quality monitoring plan.

#12 Public Concern: The BLM should develop a management plan that is simpler and easier to implement than the proposed Recreation Opportunity Spectrum system.

Public Comment : *The ROS classification system is difficult to understand and will make the RAMP difficult to administer by future BLM Field Office Managers. The use of the term demand to characterize the capability to provide for recreation visitors is difficult to understand and needs to be corrected. (#1069)*

BLM Response: In order to meet the BLM's multiple use mandate, public lands in the ISDRA are proposed to be managed with the preferred alternative as rural, roaded natural, semi-primitive motorized, and semi-primitive non-motorized under a range of classes from the Recreation Opportunity Spectrum (ROS). These multiple designations allow the BLM to provide a quality motorized and non-motorized recreational experience, as well as meet our conservation goals. The ROS model is universally used throughout all land management agencies in the U.S and has been used for the past 20 years in land management plans. BLM sponsored a ROS workshop in the spring of 2002 to help answer questions regarding ROS in the DEIS and feels that ROS is an important tool that will enhance the recreation experience.

#13 Public Concern: The BLM should use existing multiple -use classes rather than the Recreation Opportunity Spectrum.

Public Comment : *The CDCA plan established "Multiple-Use Classes" to manage the desert. "The classes are based on resource sensitivity and types of uses in the area," (1987 RAMP page 5). "The CDCA Plan establishes four multiple-use classes, multiple-use class guidelines, and plan elements for specific resources or activities such as motorized-vehicle access, recreation, and vegetation," (page 1-6, DEIS). We see no reason to change this process. In the preferred Alternative (2) there are only four of the six ROS designations used. All being basically the same other than wording from the Multiple-Use Classes. In the California Desert Conservation Area plan (CDCA) there are four established multiple-use classes. . . . These classes are basically the same, just different wording but accomplish the same thing. We see no reason for the ROS classes other than to set capacity limits on camping. (#8298)*

BLM Response: The California Desert (CDCA) Plan designated the ISDRA and several other areas for intensive OHV use. The 1987 RAMP provided guidance for management of the dunes based on the amount of use and current information regarding natural and cultural resources. This plan update was necessary because of changes in the numbers and types of use and additional information regarding natural and cultural resources.

The ROS system was developed by the U.S. Forest Service in 1979 and is widely used in North America. The system is an organizing framework for setting recreation management goals. The ROS system is based on the idea that recreationists can realize desired experiences by participating in recreation activities in chosen settings. These opportunities for activities, settings and experiences range from primitive to urban. The ROS identifies, delineates, classifies and categorizes areas into classes based on factors such as remoteness, size and evidence of human activity. It also provides information about existing recreation opportunities to land use planners and resource managers to assist them in making decisions on appropriate land uses, resource development objectives and management prescriptions. (*Recreation Opportunity Spectrum Procedures and Standards Manual, Ministry of Forests, 1998*).

In order to meet the BLM's multiple use mandate, public lands in the ISDRA are proposed to be managed with the preferred alternative as rural, roaded natural, semi-primitive motorized, and semi-primitive non-motorized under a range of classes from the Recreation Opportunity Spectrum (ROS). These multiple designations allow the BLM to provide a quality motorized and non-motorized recreational experience, as well as meet our conservation goals. The ROS model is universally used throughout all land management agencies in the U.S and has been used for the past 20 years in land management plans. BLM sponsored a ROS workshop in the spring of 2002 to help answer questions regarding ROS in the DEIS and feels that ROS is an important tool that will enhance the recreation experience. The FEIS has a table in Chapter 2 that shows a comparison between ROS and MUC classes.

#14 Public Concern: The BLM should not utilize the Recreation Opportunity Spectrum to limit OHV use at the ISDRA.

Public Comment : *The American Sand Association adamantly opposes the implementation of ROS and its application to limit motorized recreation use at the ISDRA. There is no scientific data to support the use of ROS as a method to limit motorized activity to protect any natural or cultural resources in the ISDRA. In fact, almost every study undertaken by the BLM indicates the opposite. Dune enthusiasts at the ISDRA are already [enjoying satisfying experiences in a preferred setting, as described in the ROS User's Guide]. Therefore, ROS concepts do not need to be applied to the ISDRA unless the intent is to provide a greater number of satisfying experiences while providing for conservation. This can be applied to the need for more camping and staging areas. (#7226)*

Public Comment: *The ISDRA boundary should be left as it was before the closures and not divided into nine sections (see figure 3.1-2). The central portions of the dunes rarely get any use, and I have been going to the dunes for over 22 years, and have used all parts of the dunes. If you divide up the dunes and get the people in just high use areas you are making the dunes unsafe, too many people in the same place, instead of spread out over the dunes. If you limit or restrict visitor use it is not fair to the public that owns the land. . . . There should be no ROS classification. (#5899)*

BLM Response: The ROS is not being used to limit use. It should be understood that ROS is a recreation planning tool. The ROS tool helps recreation planners identify actions that will lead to a desired recreational experience. In this instance ROS was utilized to define eight geographic areas that lend themselves to providing varying recreational experiences based in part on the amount of developments, services, and the number of visitors within the areas. In this way a continuum of recreational expectations can be provided for throughout the ISDRA. Utilizing ROS does not limit the number of visitors that can recreate in an area. Rather, ROS allows managers to identify the amount of area and facilities that are required to accommodate a certain number of visitors at a given recreational experience level. Current identified capacities will not reduce the number of visitors currently recreating at the ISDRA.

#15 Public Concern: The revised RAMP should not implement the Recreation Opportunity Spectrum because the "No Action Alternative " will adequately preserve opportunities for low -intensity OHV use.

Public Comment : *"The ROS classification of the adaptive management area is expected to slightly increase overall OHV related visitor use relative to the baseline." "Implementation of this alternative would allow the same to a little more intense use than the adaptive management area when compared to the baseline condition." The two preceding statements imply that OHV impact will increase within the adaptive management area when compared to the baseline. If the intensity of OHV use is less under the baseline, it follows that adaptive management would be unnecessary to manage resources. These comments must be clarified or the adaptive management area should be removed from the plan and replaced with the baseline management strategies. (#8375)*

BLM Response: While the No Action Alternative offers more area for use it does not provide any action that will give visitors an incentive to disperse. Additionally, the No Action Alternative does not address several other planning issues such as public health and safety issues and the conservation of T&E species.

#16 Public Concern: The BLM should develop detailed maps to support the Recreation Opportunity Spectrum.

Public Comment : *Four maps are developed in the ROS framework: physical setting map, social setting map, managerial setting map, and ROS class map. We request the above mapping be done. As far as we know, no mapping has been done—none are provided in the DEIS or the DRAMP of this scale. The boundaries of the proposed management areas remain unclear and open to dispute. (#7226)*

BLM Response: Management area maps have been prepared that utilize ROS categories. The boundaries of the management areas were designed by an interdisciplinary team of BLM professional resource specialists with years of experience in managing the ISDRA. Over time ISDRA recreationists have established an expectation of use and a cultural understanding as to the type of experience that one might have in different parts of the ISDRA. The interdisciplinary team utilized its understanding of this user defined “ROS areas” as a baseline to establish the management area boundaries. The existing boundaries were then adjusted to facilitate achievement of management goals. Specific ROS maps have not been developed but ROS categories are consistent with management area boundaries shown on the management area maps.

#17 Public Concern: The BLM should clarify the implications of using existing conditions as baseline prior to the interim closures.

Public Comment : *The DEIS states that, the baseline condition is supposed to be before the interim closures, so how can the ROS classification provide for more intense use in an area where there were no prior ROS? The area was "wide open," you can't get more intense than that! (#8267)*

Public Comment: *The DEIS claims that Alternative 2 would not result in changes to existing land use patterns in the ISDRA: the BLM would continue to manage the ISDRA for multiple uses including recreation and resource protection. The baseline condition allows full-motorized use of the Adaptive Management Area. We refer you to page five of the DRAMP, Chapter I, Introduction which states: "Currently, as a result of a negotiated settlement agreement between the BLM and a coalition of environmental and off-road groups, several areas of the ISDRA are temporarily closed in order to protect various species. This Draft RAMP is written using the "current condition" as the management of the ISDRA prior to the temporary closure. Therefore, implementation of any alternative other than Alternative 1 would result in changes to existing land use patterns in terms of geographic distribution and concentration by displacement. Alternative 2, in adopting the Adaptive Management Area and the Buffer Zone, has a negative effect on recreational opportunities. We request that the EIS correct this oversight. (#8446)*

BLM Response: The RAMP refers to the “baseline condition” as the condition of the ISDRA prior to the negotiated settlement. As a result some portions of the ISDRA were temporarily closed. The baseline refers to a starting point in which to start from. The use of an Adaptive Management Area in the center of the Dunes is a tool necessary to protect the sensitive habitat that the BLM is mandated by Congress to do. The Adaptive Management Area has a visitor supply of 75 groups (no more than 525 vehicles) per day during the visitation season. One permit would be valid for one group up to 7 vehicles for a period up to seven consecutive days. BLM realizes the OHV users like to travel in groups throughout the dunes area. Seven vehicles per group would accommodate most groups. BLM feels that 525 vehicles per day is a good baseline for this management area. This number could go up or down in the future depending upon the ongoing monitoring. The ROS method has been used by Federal agencies for the past 20 years. It is a valuable tool in calculating the number of camping sites each ROS classification can sustain. The boundaries of the management areas were designed by an interdisciplinary team of BLM professional resource specialists with years of experience in managing the ISDRA. Over time ISDRA recreationists have established an expectation of use and a cultural understanding as to the type of experience that one might have in different parts of the ISDRA. The interdisciplinary team utilized its understanding of this user defined “ROS areas” as a baseline to establish the management area boundaries. The existing boundaries were then adjusted to facilitate management.

#18 Public Concern: The BLM should reconsider the cost and efficacy of the education program for the Adaptive Management Area.

Public Comment : *I ask that you please reconsider the following parts of the draft proposal: The permitting process, including the requirement to pass a written test, is both unwieldy and impractical. Do you have figures as to the expense involved for additional staff to process the tests and track the permits? Has this written test procedure been proven effective on other BLM lands? (#191)*

Public Comment: *A resource conservation exam is unrealistic. It has the possibility of being discriminatory towards children and other people who may have mental, physical, or emotional difficulty taking exams. (#7282)*

BLM Response: The Preferred Alternative of the FEIS proposes to eliminate testing and instead require completion of a brief education program to obtain a permit to enter the AMA. The management objective in the AMA is to provide for a world class quality semi-primitive motorized recreation opportunity. In achieving this world-class opportunity, the BLM has chosen a permit riding area. This will educate everyone using this area and provide recreational opportunities while allowing for conservation of habitat and plant species of concern. The BLM believes this management component represents a balanced approach to our multiple use mandate, and a reasonable decision-making tool to protect federally listed and sensitive species. Under the Endangered Species Act, the BLM is legally obligated to protect listed species. The RAMP has BLM estimates for the costs associated for the implementation of the Adaptive Management Area. The permit process has proven effective for the BLM, Forest Service, and National Park Service. If fraud becomes a problem, the BLM Rangers will take the necessary action in order to discourage that type of action.

#19 Public Concern: The BLM should clarify how the ISDRA share of green sticker funds is determined.

Public Comment : *I also am wondering why Glamis is having difficulty obtaining green sticker money. With all of the OHVs that come out to Glamis, I would think a large portion of the money would be used here. (#178)*

BLM Response: The ISDRA receives approximately one million dollars for operations and maintenance through grants each year. BLM needs to compete for these funds on an annual basis and is not guaranteed any funding from the program. Competition for the funds is difficult due to the limited amount of OHV trust funds available to federal agencies. At one million dollars, the Dunes receive approximately a little less than 10% of the available funds for the State. At this time, the annual cost to manage the Dunes is approximately 4.5 million dollars.

#20 Public Concern: The BLM should manage the ISDRA within its current fee schedule and budget.

Public Comment : *Some of your ideas may be good but it would cost too much to do them and the resources are limited and should be used on realistic things. Plus the public is not going to want to pay any more fees—we already have to pay Federal tax, State tax, green sticker fee, and dune user fee. You need to use your budget wisely and not keep asking for more money. Keep as is with the funding of law enforcement and things will be fine. (#5899)*

BLM Response. The El Centro Field Office has received several millions of dollars in OHV Trust Fund grants over the last several years. These grants have funded operations and maintenance, 15 new toilets, paved access roads, law enforcement, emergency medical services, trash collection, toilet pumping and cleaning, and natural resource monitoring. In the future the grant and federal dollar allocations are expected to decrease as expenditures rise. With no other source of revenue, BLM will be revisiting the fee demo plan in FY03. The plan will be developed to make the fee program sustain the financial need of the entire dunes operations.

Due to the increased number of OHV enthusiasts and the decreased level of quality OHV recreation opportunities, visitation has substantially increased over the last several years. This, coupled with new types of non-motorized recreational visitors (party types with out OHVs), has caused a need for increased law enforcement. The BLM has responded to this need and has already started to change the recreational opportunities more toward a family atmosphere during the busy holiday weekends. The RAMP addresses the enforcement needs and provides additional tools for the responsible management of the Dunes. These actions will need funding from the fee demo program, grants, or federal appropriated dollars.

#21 Public Concern: The BLM should widen the study area for socioeconomic impact.

Public Comment : *Pg. 3-8 Size of Socio-Economic Impacts Study Area. The DEIS admits that only 10% of ISDRA visitors are local, while the remaining 90% come from Los Angeles, San Diego, Phoenix, Tucson, and other areas of the U.S. This*

demonstrates that the study area for the "economic" impacts analysis should be widened. 3-48 Study Area for Socio-Economic Impacts Analysis. The study area for the DEIS's socioeconomic impact analysis is too small. At a minimum, it should include San Diego, Los Angeles, Orange, and Riverside counties. There is no basis for assuming that the vast majority of economic impacts occur in Imperial County and Yuma County. (#8286)

BLM Response: The socioeconomic section of the Final EIS has been rewritten. However, a new study on socioeconomic impacts was not done.

#22 Public Concern: The BLM should manage the ISDRA in a way that recognizes the ISDRA's designation as a Natural Landmark.

Public Comment : *We recommend that the BLM abandon this DEIS and its Proposed Management Plan, and start with something that recognizes the purpose of registering this site as a Natural Landmark, and something that shows the BLM really is capable of managing a destructive form of recreation in a way that protects, for everyone, the natural resources of the dunes. (#7312)*

BLM Response: The ISDRA is registered as a Natural Landmark. The Federal Land Policy Act requires BLM to use and observe the principles of multiple use in developing land use plans for public lands. Multiple use is a concept that requires that public lands and their resource values be managed in a way that best meets the present and future needs of the people. Multiple use involves a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources. BLM will manage the ISDRA for resource conservation and meeting the current and future recreational use needs. Management will be consistent with the ISDRA designation as a Natural Landmark.

#23 Public Concern: The BLM should follow the National Historic Preservation Act by surveying and protecting eligible cultural sites within the ISDRA.

Public Comment : *In addition to violating the NHPA and related statutes by not consulting with the Quechan and other tribes, the BLM is flagrantly violating the NHPA by carrying out an "undertaking" without making adequate assurances that NHPA eligible sites are protected. Prior to authorizing ORV use in the Dunes, BLM must carry out the requisite surveys. Allowing vehicles in the Dunes without doing such surveys violates both the NHPA and NEPA. (#8051)*

BLM Response: BLM complied with cultural resource laws, initiating consultation with appropriate tribes and surveying a sample of the dune system. BLM initiated consultation with the Quechan and six other tribes and, in addition, BLM commissioned a Cultural Landscape Study of the Dunes that included interviews with elders and representatives of these tribes. An archaeological survey of 5% of the dune system was completed in 2002 for this plan. This was in addition to archaeological surveys conducted previously (refer to Table 3.8-1 of the Draft EIS).

Endangered Species Act and Affected Environment

#24 Public Concern: The BLM should base decisions on scientific data rather than assumptions and opinions.

Public Comment : *I do have great concerns with other aspects of the DEIS. The brunt of my concern centers on the difference between data and opinion. I have reviewed the plan very carefully and was alarmed to find inconsistent data in several areas. When consistent data was presented it was often unsupported. This leads me to the logical conclusion that an environmental study based on unsupported, inconsistent data must be deemed inherently flawed. As a California citizen and taxpayer I must stress that I, and I believe a great many others, would feel much better commenting on a study that was based on data properly analyzed by real scientists following the time tested scientific method; hypothesis, experimentation, data analysis and finally conclusion. (#7673)*

BLM Response: It is the policy of the BLM to use the best available information for decision purposes. This may include both peer reviewed and non-peer reviewed data. Information gathered within the BLM and from other sources are utilized as appropriate. Inconsistencies and errors in the DEIS have been corrected in the FEIS.

#25 Public Concern: The BLM should reconsider the adequacy of the Thomas Olsen and Associates study and the 1998 -2000 monitoring study in the planning and decision - making process.

Public Comment : *The BLM can consider the TOA study and its 1998-2000 monitoring studies in its planning and decision-making process. However, given the complex issues and controversy surrounding ISDA management, excluding the interim management regime based largely upon the BLM's suspect assessment process is arbitrary and capricious as a matter of law (5 U.S.C. [section] 706(2)(A)) and renders the BLM's range of alternatives quite unreasonable. This conclusion holds true even if we believed—which we do not—that the 1998-2000 monitoring studies and the TOA study were scientifically sound or provide the level of scientific proof necessary to make a reasoned and informed decision. Furthermore, the Biological Assessment's reliance on monitoring and impact assessment (ISDRA Biological Assessment 4-1 2002) is inadequate as it does not mitigate impacts or levy definitive protection for sensitive species. (#8052)*

Public Comment: *The BLM does not use "scientific integrity" or the "best scientific data" in the DEIS or Biological Assessment (BA). An example of this is the BLM's single-minded reliance on the Thomas Olsen Associates Inc. (TOA) 2001 study. Despite the obvious biases of this un-published, un-peer reviewed study—it was contracted by ORV groups—the BLM even uses the results of this study as justification to eliminate the Interim Management Alternative from the DEIS (BLM 2002). In so doing, BLM ignores all the other studies at the Dunes that have found significant impacts from ORV use. (#8051)*

BLM Response: BLM believes both studies are well designed and their results have been utilized in the FEIS. However, these studies were only two of many completed in past years that the BLM reviewed before issuing a Draft EIS. In addition, they were not a primary source of data in the decision making process. Literature used in the FEIS is based on individual merit and applicability and may include both peer reviewed and non-peer reviewed data. Information gathered within the BLM and from other sources are utilized as appropriate.

#26 Public Concern: The BLM should use an independent team of scientists to support management decisions.

Public Comment : *I urge the use of an independent team of scientists be used to support management decisions regarding protection. The Algodones Dunes are too precious a resource to allow further destruction. (#8225)*

BLM Response: It is the policy of the BLM to use the best available information for decision purposes. This may include both peer reviewed and non-peer reviewed data. Information gathered within the BLM and from other sources are utilized as appropriate. In addition, the RAMP and EIS are carefully reviewed by local, state and federal agencies, including the U.S. Fish and Wildlife Service.

#27 Public Concern: In order to comply with NEPA, the BLM should establish ecological protection as the primary management goal for the ISDRA. BLM should manage the ISDRA for natural values.

Public Comment : *The Purpose & Need of the RAMP Improperly Fixates on Providing for ORV Use: The purpose of the DRAMP/DEIS identified on page 6 of the Executive Summary places disproportionate emphasis on recreational ORV use to the detriment of the health and integrity of the ISDRA's broader landscape. . . . The Purpose and Need sections of the DRAMP/DEIS betray the BLM's intentions in the ISDRA: to prioritize ORV use, subordinating protection of the landscape is, at best, a second-tier priority. Fundamentally, the BLM must protect the broader ecological landscape within which those special status species rest, a principle that must be definitively and explicitly reflected within the Purpose and Need. NEPA imposes an affirmative obligation on the BLM to act as an ecological steward of our public lands. (#8052)*

Public Comment: *Overall, BLM'S proposed alternative is heavily weighted in favor of vehicular recreation and under weighted in protection of the environment. This is exactly the opposite of BLM's management mandate under the Federal Land Policy and Management Act (FLPMA) and the Endangered Species Act. BLM does have a multiple-use mandate under FLPMA, but scientific, scenic, historical, ecological, and environmental values must be protected (43 USC 1701 Sec. 102(a)(7)(8).) Protection of the environment should be the overriding goal of the plan, rather than recreation being given primary consideration, as it is in the DEIS and RAMP. For example, the RAMP at page 5 states that "The Draft RAMP emphasizes recreational use while providing for natural and cultural resource conservation and enhancement." That statement makes environmental protection secondary to recreational use, clearly a*

violation of FLPMA and the CDCA Plan. The heavy emphasis on off-highway vehicle (OHV) recreation also goes against BLM's multiple use mandate by being so heavily oriented toward a single use, OHV recreation. (#8052)

BLM Response: The Federal Land Policy Act requires BLM to use and observe the principles of multiple use in developing land use plans for public lands in compliance with NEPA. Multiple use is a concept that requires that public lands and their resource values are managed in a way that best meets the present and future needs of the people. Multiple use involves a combination of balanced and diverse resource uses that takes into account the long term needs of future generations for renewable and nonrenewable resources. BLM will manage the ISDRA for resource conservation, and meeting the current and future recreational use needs.

#28 Public Concern: The BLM should maintain the current closures as control areas for scientific studies.

Public Comment : *CNPS [California Native Plant Society] supports adaptive management of the dunes, and views the interim closures as necessary "control" areas by which to measure changes in the "experimental" or open areas—those areas open to motor vehicle use and other activities (the identified threat to the state and federally listed plant species). This concept is the very basic tenant of scientific experimental design, identified in every Biology 101 course. This experimental design assures that the native plant capital is conservatively managed until scientific evidence is produced on which to base adaptive management. By keeping the interim closures, both "control" and "experimental" areas are automatically set up throughout the dunes, which captures the geomorphic and climatological differences in habitat. (#184)*

BLM Response: The Federal Land Policy Act requires BLM to use and observe the principles of multiple use in developing land use plans for public lands in compliance with NEPA. Multiple use is a concept that requires that public lands and their resource values are managed in a way that best meets the present and future needs of the people. Multiple use involves a combination of balanced and diverse resource uses that takes into account the long term needs of future generations for renewable and nonrenewable resources. BLM will manage the ISDRA for resource conservation, and meeting the current and future recreational use needs. Information gathered and analyzed after the settlement agreement in November 2000, suggests that maintaining the entire interim closures as control areas is not required for monitoring and study purposes. BLM feels the wilderness, where approximately 25% of the habitat of special status species is protected, and the inclusion of the Adaptive Management Area where an additional 30% would be monitored and managed intensively will meet the conservation objectives for the Imperial Sand Dunes Recreation Area.

#29 Public Concern: The Final EIS should include an analysis of each endemic species to the dunes.

Public Comment : *The plan fails to analyze many dunes-endemic species. (#218)*

BLM Response: The BLM, through the FEIS, has proposed monitoring efforts for a variety of plant and animal species that are intended to give managers the necessary information (data) to make decisions on the amount of OHV use that is appropriate based on population sampling of listed and sensitive species. Data on all species endemic to the ISDRA is not available for analysis.

#30 Public Concern: To protect habitat types and landforms, the BLM should protect large areas in the central and southern dunes.

Public Comment : *The North Algodones Dunes Wilderness is not enough (18%) to protect habitat types and landforms represented dunes-wide. To protect the over 80 animal and 60 plant species found in the dunes, many of which only live there, BLM must protect large areas in the central, and southern dunes, south of I-8. (#1534)*

BLM Response: In the preferred alternative in the EIS, the Adaptive Management Area (AMA) would be used to protect large areas in the central dunes. The AMA would limit OHV use and would be extensively monitored to ensure protection of identified species in the southern dunes area. In addition, seasonal closures will provide additional protection to sensitive species. The BLM, through the FEIS, has proposed monitoring efforts for a variety of plant and animal species that are intended to give managers the necessary information (data) to make decisions on the amount of OHV use allowed based on population sampling of listed and sensitive species. BLM believes this management component represents a balanced approach to its multiple use mandate and a reasonable decision making tool to protect federally listed and sensitive species. Under the Endangered Species Act, BLM is legally obligated to protect listed species.

#31 Public Concern: The BLM should not save immigrant plant species at the expense of public use of lands.

Public Comment : *I do strongly disagree with preserving the dunes to the extent the conservationists wish. The understanding I have is the plant is not native to California. I do understand the desire to save a species from extinction. However, saving any species in an area it has immigrated to, in my opinion, is questionable. It is questionable especially when it comes at the plight of individuals in the right to use public land. We all own the land, and we may not agree with all of the uses, this is one case in which the "duners" have the right to maintain using the dunes. Again, the plant species is an immigrant, not native to the area and should not infringe on the rights of U.S. citizens from using their land. (#7591)*

BLM Response: Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*) is native to the Imperial Valley and the ISDRA. Under the Endangered Species Act, BLM is legally obligated to protect listed species.

#32 Public Concern: The BLM should protect sensitive vegetation and wildlife by restricting OHV use.

Public Comment : *We wish to strongly urge BLM to keep off-road vehicles out of Algodones. The closure protects sensitive plants and animals and opening it up will undoubtedly imperil many species. (#46)*

Public Comment: *The ISDRA is the only location where Peirson's milk-vetch is known to occur in the United States (see Exhibit 7). The ISDRA supports between 75 and 80 percent of all of the world's known colonies of the species (Federal Register 1998). The plant is scattered throughout the dune complex with a higher abundance along the central and western aspect of the Imperial Sand Dunes. Surveyors in 1977 reported that no seedlings of any of the sensitive plant taxa, including Peirson's milk-vetch, could be found in areas receiving heavy ORV use (Westec 1977). Moreover, large areas receiving intensive ORV use showed a virtually complete loss of all plant cover (Bury and Luckenbach 1983). By 1990, colonies of mature Peirson's milk-vetch could not be located in areas of heavy ORV use and colonies located in areas receiving moderate ORV use had lower reproductive success and poorer health than comparable populations located in areas closed to ORVs (ECOS 1990). (#8051)*

BLM Response: Although desert ecosystems recover from human caused disturbances, the amount of time this recovery takes depends on a variety of factors. Rainfall, soil substrate, and parent material (other plants) all play a role. With continued disturbance, the desert often plays host to a variety of invasive (non-native plants), while wildlife species, often the transporters of parent material are displaced as well. Generally, the more continually disturbed an area is, the more time it will take to recover naturally, while in the meantime, some species of plants and animals may fail to repopulate a given area if their numbers are low elsewhere. The BLM, through the EIS, has proposed monitoring efforts for a variety of plant and animal species that are intended to give managers the necessary information (data) to make decisions on the amount of OHV use allowed based on population sampling of listed and sensitive species.

#33 Public Concern: The BLM should justify access restrictions to protect sensitive species. The FEIS should include supporting data that supports claims that OHV use harms Peirson's milk-vetch and that limiting OHV use protects it.

Public Comment : *There is no scientific biological data showing restrictions on motorized recreation are necessary to protect any sensitive species. The proposed Adaptive Management Area is unnecessary as well as impractical from an administrative standpoint. The current "temporary" closures should be lifted and re-established for OHV use. The recent scientific study/count by the American Sand Association documents more than 70,000 Peirson's milk-vetch plants in the currently "open" OHV areas. This plant is definitely not endangered. (#7808)*

Public Comment: *There is no evidence that OHVs cause a negative impact against the Peirson's milk-vetch in the dunes. It is not a victim of the OHV. In fact, we as responsible duners make a very conscious point to stay away from all natural plants*

and animals because we are environmentalists too. We are riding "in their house" and try to leave the plants and animals alone. Therefore, there is no justification to limit access to this area, as there is no scientific data or reason to limit our access to the Adaptive Management Area. (#7889)

Public Comment: *I am not aware it has been proven that all-terrain vehicle or dune buggy use has harmed Peirson's milk-vetch in any way. I would hope the BLM would use acceptable science to determine whether there is any correlation whatsoever between off-road use in the closed areas of the ISDRA and the survivability of Peirson's milk-vetch. The growth of desert vegetation does not follow nice linear rules which appear to be applicable to non-desert vegetation. If there has been a decline in Peirson's milk-vetch in the closed areas of the ISDRA, I am wondering if it is possible for climatic and rainfall variables to have been factored out to make a certain determination that off-road vehicle use is harmful to Peirson's milk-vetch. How can a baseline which only goes back a few years accurately represent the range of climatic and rainfall variables which may affect Peirson's milk-vetch without a study period which takes into account the range of variables which may affect the survivability of Peirson's milk-vetch? (#164)*

Public Comment : *Pg. 3-25 and 3-26 Threats to Other Sensitive Plants. As with OHV impacts on the PMV, the DEIS grossly overstates the OHV threat to the Algodones Dunes sunflower, Wiggins Croton, Giant Spanish Needle, and sand food. BLM's monitoring reports (November 2000 and June 2001) do not support this claim. (#8286)*

BLM Response: BLM issues management plans for a series of years, and therefore must take into consideration a potential increase in OHV activity, as well as the protection of natural resources associated with the ISDRA under federal regulations, as well as the Endangered Species Act. During the planning process, the BLM used the best available data in order to determine historical use of the ISDRA, as well as the impacts of OHV use. Although the area currently described as AMA (Adaptive Management Area) has likely received lower use than other areas, this may not always be the case. BLM feels that the AMA will accommodate recreation use and provide the flexibility to increase or decrease the number of permitted visitors in that area based on the intense monitoring program identified in the EIS.

#34 Public Concern: The BLM should consider transplanting sensitive desert species to the dunes.

Public Comment : *If the milk-vetch is so important, there are dozens of folks in Yuma that will be glad to grow it and the environmental do-gooders will be free to come and transplant all of them they wish! They can also trap and give some lizards to folks who raise reptiles and then offer \$50 for each one. At that price, you can be sure the folks who raise such reptiles will be very successful at it. Then the millions the environmentalists have to spend on lawyers can be used to buy thousands of the*

lizards and they can place those in the wild when they transplant the milk-vetch plants we can raise by the thousands. (#1066)

BLM Response: Under the Endangered Species Act, BLM is legally obligated to protect listed species in their natural habitat. Although transplantation has been performed on a variety of animal species in the past, it has only been done with the intent of re-introducing those species back into their natural habitat, a requirement for recovery of a federally listed species. The Peirson's milk-vetch is also part of a larger and unique plant community termed psammophytic (sand loving) scrub. Allowing the removal of this plant from the constituent community may have deleterious effects on other species as well. Since particular plants play a role in any given ecosystem, the effects of removing any one species, or allowing any one species to become removed, may give way to more listed species in the future.

#35 Public Concern: The BLM should not consider Peirson's milk -vetch as a factor in limiting use of the ISDRA.

Public Comment : *I am convinced that Peirson's milk-vetch should be removed from the threatened species list, and should not be a factor in limiting the use of the Imperial Sand Dunes. (#169)*

Public Comment: *The milkweed issue as I feel it is merely an excuse for certain groups to close the area. (#6005)*

BLM Response: The Peirson's milk-vetch was listed under the Endangered Species Act by the U.S Fish and Wildlife Service. BLM is legally obligated to protect federally listed species in their natural habitat.

#36 Public Concern: The BLM should not designate any critical Peirson's milk -vetch habitat until its challenged threatened status is resolved.

Public Comment : *Peirson's milk-vetch is doing fine. Its "Threatened" status has been challenged and any attempt to create a de facto "critical habitat" area should wait until this matter is resolved. This would not prevent the future critical habitat designation if the best available science proves the PMV needs it. (#8282)*

BLM Response: The BLM does not "list" species. BLM does not designate critical habitat.

#37 Public Concern: The BLM should clarify how viability is defined for populations of native species.

Public Comment: *In a related issue to maintaining habitat, BLM establishes a goal for biological resource management to "maintain viable populations of all native species throughout ISDRA." (Draft Biological Assessment, p. 2-9). Viable at what level? At the minimum possible level? Or at a higher level? What does BLM consider to be a measure of "viability" for a population? (#8009)*

BLM Response: "Viable" describes a self-sustaining population and habitat that is capable of reproducing and regenerating without the need for human intervention.

#38 Public Concern: The BLM should recognize that weather and natural forces impact the Adaptive Management Area and ISDRA more than OHV use.

Public Comment : *As for the adaptive area, I have to say that I think you're way off track on the effects of usage by motorized vehicles. Nature is a hundred times more powerful of a force than the limited number of people that would visit this area, if opened up with no restrictions. It's well known that plant life goes in five to seven year cycles. I've seen this for years. It's directly influenced by wind blowing the dunes in certain directions, rain amounts from year to year, and temperatures in relation to that moisture. When the stars line up (so to speak) all these influencing factors result in a crop of plants. If you took the time to open up the area and monitor it for 10 years you'd see that motorized vehicles don't impair the survivability of plants, as is the case for the last 40 years. These plants grow like weeds when the climate factors are just right. (#294)*

Public Comment: *As for species of concern in the dunes, all but one report confirms that OHV use in the ISDRA does not have a significant impact. And that one report was declared flawed by the BLM. One report states that the weather has more effect on Peirson's milk-vetch than to OHV use. These were studies initiated by the BLM. (#7873)*

BLM Response: BLM does recognize that natural forces play a role in the natural environment. Rainfall, wind events, and drought all play a role in the ecology of the ISDRA. Although desert ecosystems recover from human caused disturbances, the amount of time this recovery takes depends on a variety of factors. Rainfall, soil substrate, and parent material (other plants) all play a role. With continued disturbance, the desert often plays host to a variety of invasive (non-native plants), while wildlife species, often the transporters of parent material, are displaced as well. Generally, the more continually disturbed an area is, the more time it will take to recover naturally, while in the meantime, some species of plants and animals may fail to repopulate a given area if their numbers are low elsewhere. BLM, through the EIS, has proposed monitoring efforts for a variety of plant and animal species that are intended to give managers the necessary information (data) to make decisions on the amount of OHV use allowed based on population sampling of listed and sensitive species.

#39 Public Concern: The BLM should provide data demonstrating the need for motorized use restrictions in the Adaptive Management and Buffer Zone to protect sensitive species.

Public Comment : *There is no justification for restricting motorized access using an Adaptive Management Area or Buffer Zone for biological and resource protection. (Sec. 2-7) The Draft Environmental Impact Statement (DEIS) assumes there is insufficient scientific data to support the temporary interim closures. Therefore, the 1987 RAMP that does not include said closures, has been used as the baseline in the selection of the preferred Alternative. No data is provided to demonstrate restricting motorized access via an Adaptive Management Area (AMA) and a Buffer Zone (BZ) is necessary to protect any sensitive species. While there is no definitive visitor use data for the AMA, it is a well-known fact that this area is the lowest OHV use area at the ISDRA. Chapter 2-12, of the DEIS, Rationale for Rejection for 2.2.3 Interim*

Management Alternative states: The primary reason for rejecting this alternative is that interim closures (as stipulated in the settlement agreement was developed in November 2000 with plaintiffs (Center for Biological Diversity and others) to establish interim actions to protect endangered and threatened species pending completion of USFWS consultation on the CDCA Plan in total. Prior to November 2, 2000, the BLM did not have the results of monitoring to assess adequately the status of sensitive species addressed by the settlement agreement. The results of the monitoring conducted since November 2000 and other data collected prior to November 2000 and assessed after the settlement agreement indicate that continuing the interim closures is not necessary to ensure adequate protection for the species of concern. (#8071)

BLM Response: The Adaptive Management Area (AMA) would be used to protect large areas in the central dunes. The AMA would limit OHV use and be extensively monitored to ensure protection of identified species in the southern dunes area. In addition, seasonal closures would provide additional protection to sensitive species. The BLM, through the FEIS, has proposed monitoring efforts for a variety of plant and animal species that are intended to give managers the necessary information (data) to make decisions on the amount of OHV use allowed based on population sampling of listed and sensitive species. BLM believes this management component represents a balanced approach to its multiple use mandate and a reasonable decision making tool to protect federally listed and sensitive species. Under the Endangered Species Act, BLM is legally obligated to protect listed species. This information has been added to Chapter 3 in the Proposed RAMP.

#40 Public Concern: The BLM should not support the claim that OHV use negatively impacts desert wildlife.

Public Comment : *On page 15 of chapter 4 the DEIS states "the Colorado Desert fringe-toed lizard and endemic dune beetles occurring in these dunes would be killed or injured by OHV activity." This seems very presumptive since, in all my years of visiting the dunes, I have never once seen a single dead lizard or beetle. Is there any evidence to support this claim? Most of the objective data collected seems to indicate that OHV use has only a very minor impact if any on desert biology in the dunes (table 4.2-2). (#8281)*

Public Comment: *The DEIS states that OHVs driving through desert wash areas may kill desert tortoises and destroy their burrows. The DEIS then claims that this same activity may have adverse effects on the Couch's spadefoot toad, which occasionally breed in the ephemeral ponds that develop in wash areas. However, the DEIS fails to provide any technical data in support of these contentions. We know of no data which indicate that OHV activity in the washes at ISDRA (or elsewhere) has damaged desert tortoises or Couch's spadefoot toads, or has otherwise jeopardized their reproductive success. The BLM, when finalizing the EIS, should remove such speculative comments from the document unless they can be substantiated with verifiable data. (#8286)*

Public Comment: *The DEIS claims that OHVs create negative impacts on certain special status wildlife species, including the Flat-tailed horned lizard and the Fringe-*

toed lizard. However, there are no data demonstrating that OHV use in the ISDRA kills these species, crushes their burrows, or otherwise contributes to any real or perceived decline in their populations. (#8286)

BLM Response: All three species you mention may be adversely impacted by OHVs through direct mortality, injury, disturbance, habitat degradation and collection. To what extent such impacts will occur needs to be determined through the intense monitoring program identified in the EIS.

#41 Public Concern: The BLM should consider that OHV noise warns desert wildlife of approaching OHV traffic.

***Public Comment :** Chapter 4 page 15 argues that OHV noise levels would be detrimental to the desert animals causing a loss of hearing. I would argue that the loud nature of OHVs is better for the beetles and lizards because they have plenty of warning that a vehicle is approaching and can take cover well in advance of the passing of the vehicle, thereby avoiding any adverse impact or unintentional taking of animals. Also, since large groups of vehicles tend to travel on the dunes in single file, a beetle or lizard that hears an approaching vehicle and moves to avoid it will also avoid all of the other vehicles in the group that are following the leader. Perhaps this is part of why the majority of objective data shows that OHV activities are not impacting populations. (#8281)*

BLM Response: Noise does warn them but they don't always get out of the way in time.

#42 Public Concern: The BLM should conduct surveys necessary to protect all species of concern.

***Public Comment :** The BLM suggests that studies "assessed after the settlement agreement, indicate that continuing the interim closures is not necessary to ensure adequate protection for the species of concern" (BLM 2002). This cursory conclusion is based entirely on the non-published, non-peer reviewed report of a non-expert biologist-for-hire paid for by the off-road vehicle industry (see Phillips et al. 2001). Even if the study could somehow be considered useful, scientific information supporting BLM's statement that the interim closures are "not necessary," the study deals only with plants. BLM has no information that any level of protection less than that provided by the interim closures will protect any of the several dozen rare, threatened, endangered or endemic animals at the Dunes. The BLM never performed Desert tortoise surveys at the ISDRA; the last surveys for the Flat-tailed horned lizard were completed in the early 80's; and surveys for the Andrew's dune scarab beetle and Colorado Desert fringe-toed lizard required by the 1987 WMP were not conducted. (#8051)*

BLM Response: BLM manages the ISDRA according to a multiple use mandate, as well as the laws regarding federally listed and sensitive species populations. The BLM, through the EIS, has proposed monitoring efforts for a variety of plant and animal species that are intended to give managers the necessary information (data) to make decisions on the amount

of OHV use allowed based on population sampling of listed and sensitive species. BLM believes this management component represents a balanced approach to our multiple use mandate. The flat-tailed horned lizard was surveyed at the Dunes in 1979, 1984, 1988, 1993, 1994 and 1995. The major surveys were in 1979, 1988 and 1990. The fringe-toed was surveyed in 1987, 1988, 1989, 1991, 1993, 1996, 1997, 1998, 1999, 2001 and 2002. Tortoise surveys are scheduled for September 2002.

#43 Public Concern: The BLM should explain why it did not conduct transect studies of fringe-toed lizards every other year as mandated by the 1987 RAMP.

Public Comment : *One objective of the HMP (1987) was to "determine the status of species of special management concern." BLM had a declared responsibility to monitor population trends in order to ascertain whether these species were being negatively affected by continued ORV use. For example, transect studies were to be conducted every other year to monitor trends in the dunes population of Colorado Desert fringe-toed lizards. One study was conducted in 1990; another study was possibly conducted in 1998; and BLM also conducted surveys in fall and spring 2001. Yet there is no evidence of additional survey data from between 1990 and 2001. Without these regular surveys, it is impossible to track long-term trends in the population and thereby "ensure that no special status species' continued existence is jeopardized." (#8051)*

BLM Response: BLM surveyed for this species in 1987, 88, 89, 91, 93, 96, 97, 98, 99, 2001 and 2002.

#44 Public Concern: The BLM should justify closing 25,600 acres east of Glamis for desert tortoise habitat.

Public Comment : *I do not agree with the closing of 25,600 acres east of Glamis for the desert tortoise habitat. This was done without any studies to identify this area as such. This area should be opened up immediately. (#7244)*

Public Comment: *Section 1.3.5 of the EIS indicates that 25,600 acres within the ISDRA (east of Glamis) was closed to camping because it is "desert tortoise habitat." Neither the BLM nor the U.S. Fish and Wildlife Service identify any of this area to be desert tortoise habitat. There is no mention of desert tortoise habitat in the lawsuit stipulation that initiated the closures to OHV use within the ISDRA. The closure of 25,600 acres that was implemented on October 18, 2001 was done without any justification and should be reopened. Paragraph 1.3.7 (page 1-11) of the EIS, states that, according to the U.S. Fish & Wildlife Service, "the ISDRA is within the range of the desert tortoise but is not within critical habitat for any existing or proposed reserve area." (#7711)*

BLM Response:

This temporary closure is part of the negotiated settlement agreement between BLM and a coalition of environmental groups. Approximately 1,200 acres has been proposed for inclusion within the ISDRA boundary. In the Preferred Alternative these 1,200 acres are

proposed to be opened to camping. However, the areas closed to camping in 2001, and categorized as Desert Tortoise habitat, are identified as Desert Tortoise, category 3 habitat.

Visitor Use

#45 Public Concern: The BLM should permit OHV use at the ISDRA to protect the recreational investments of OHV enthusiasts.

Public Comment : *I am sure that you know that there is thousands upon thousands of dollars invested by people in their off-road equipment, not to mention the thousands upon thousands that is spent on motor homes, campers, 5th wheels and trucks that get the families where they can enjoy their time away from home. Do you really think that the people just want to sit and look at their equipment sitting in their driveways. I don't think so. (#7792)*

BLM Response: Under the Proposed RAMP and FEIS, all areas previously open to OHV use, before the temporary closures, will once again be open under an open or limited use designation. All areas will be reopened except the Adaptive Management Area, which will be accessible by permit only. Multiple designations allow the BLM to provide a quality motorized and non-motorized recreational experience, as well as meet our conservation goals and requirements over the next 10 to 15 years. BLM is mandated to manage public lands to provide for multiple use and sustained yield. The California Desert (CDCA) Plan designated the ISDRA and several other areas for intensive OHV use. The 1987 RAMP provides guidance for management of the dunes based on the amount of use and current information regarding natural and cultural resources. This plan update was necessary because of changes in the numbers and types of use and additional information regarding natural and cultural resources. The Proposed RAMP will ensure that OHV recreation opportunities are allowed to continue while conserving natural and cultural resources.

#46 Public Concern: The BLM should prohibit OHV use in the ISDRA.

Public Comment : *As a concerned citizen I would like to voice my opposition to the further degradation of the Imperial Sand Dunes region by the vocal but relatively small group of recreational vehicle enthusiasts. As more and more of our public lands are being compromised by the pressure of over-population it is important that agencies such as the BLM recognize that there is an overwhelmingly large proportion of citizenry of this state, and indeed the nation, who want to safe-guard our remaining open spaces. I call on the BLM to prohibit the use of these vehicles throughout the dunes system. (#7526)*

BLM Response: The Federal Land Policy Act requires BLM to use and observe the principles of multiple use in developing land use plans for public lands. Multiple use is a concept that requires that public lands and their resource values are managed in a way that best meets the present and future needs of the people. Multiple use involves a combination of balanced and diverse resource uses that takes into account the long term needs of future generations for renewable and nonrenewable resources. BLM will manage the ISDRA for

wilderness, conservation of species and habitats, OHV recreation and a variety of recreation programs.

#47 Public Concern: The BLM should consider protecting the South Algodones Dunes with applicable laws and programs.

Public Comment : *The omission of the 61,630 acre South Algodones Dunes from the 1994 Wilderness Bill (DRAMP, p. 9) does not preclude that area from protection under the Endangered Species Act, or under the State of California's Wildlife Habitat Protection Program, required as a condition of receiving State OHV grants, on which BLM depends for management of the ISDRA. If BLM proposes to use historic events for management today, it should revert to the 1968 designation of the entire dunes system as a "Special Natural Area" and remove all off-road vehicle use. (#7312)*

BLM Response: This area was studied for potential as a wilderness area and released as unsuitable by Congress in 1994. Under the preferred alternative in the FEIS it would be conserved through implementation of the Adaptive Management Area program. Limited OHV use, extensive monitoring of sensitive plants and animals, and seasonal closures proposed in the Preferred Alternative would help protect this area.

#48 Public Concern: The BLM should justify its assertion that OHV mobility allows more restrictive limits on OHV access near the inner dunes without impacting viewing opportunities.

Public Comment : *Page 4-71 4.6 Visual Resources 4.6.2.2 Change in ROS Designation. I believe that allowing more intense use in a particular management area provides views of the inner dunes to more recreationists at one time, and is a visual benefit. It is also clear that allowing less intense use in a particular management area provides views of the inner dunes to fewer recreationists at one time. There is no logical connection to the assumption that a "high level of mobility" can offset a lower level of allowable use that would not adversely affect view opportunities of the OHV enthusiasts. (#7952)*

BLM Response: The Imperial Sand Dunes has a superb variety of scenic value resources and are considered an important component to the recreation experience. The contrast rating process is a tool used to determine the extent of visual impact that proposed resource management activities would create in a landscape. It serves as a guide for reducing visual impact to acceptable levels and defined by the visual management objectives and multiple use class guidelines.

#49 Public Concern: The BLM should promote non -motorized recreation opportunities at the ISDRA.

Public Comment : *The preferred alternative gives special preference to recreation intended for OHV use almost exclusively. I would like to see the dunes made more available to people who would like to experience the dunes on foot. This could include a short tour available for travelers coming through by bus or car who could take a short tour, perhaps on a board walk with kiosks telling about this unique*

habitat. Longer hikes should also be made more accessible. At this point it is very difficult to park and hike into the dunes for more extensive hikes. An even broader look could be made at encouraging eco-tourism which would include other neighboring desert resources, including the Palo Verde Woodlands, Anza-Borrego State Park, the Salton Sea and Colorado River. Making access for foot traffic might mean doing some reconfiguration of the areas closed to vehicles. (#279)

BLM Response: The watchable wildlife site on the eastern side of the North Algodones Dunes Wilderness provides for a two-wheel drive access point for short and long hikes into the Dunes. When staffing and funding allow, the BLM provides free-guided interpretive hiking tours to enhance the public's knowledge and appreciation of natural and cultural resource conservation. In addition to this, the Proposed RAMP proposes to create a new bus parking area and interpretive site on Greys Well Road. This site would have interpretive kiosks with conservation-oriented information and an area closed to motorized use for interpretive hikes. In order to meet the BLM's multiple use mandate, public lands in the ISDRA are managed as open, limited, closed, and designated under a range of classes from the recreation opportunity spectrum. These multiple designations allow the BLM to provide a quality motorized and non-motorized recreational experience, as well as meet our conservation goals and requirements. The North Algodones Dunes Wilderness provides for over 26,202 acres for non-mechanized recreation opportunities. The Adaptive Management Area would permit a limited number of OHVs in order to allow a semi-primitive motorized recreational experience while conserving the natural and cultural resources.

#50 Public Concern: The BLM should not favor OHV use at the ISDRA in response to receiving OHV-generated funds.

Public Comment : *The claim is often made that off-roaders pay their way through green-sticker funds, Symms Act funds, etc. This is not at all the case. . . . In any case, ISDRA is still public land, and is not owned by the off-roaders, even though they have been, and, under present plans, will be granted, de facto, exclusive use of most of it. Off-highway vehicle recreation does not belong on public land. The government should not be running amusement parks for off-roaders. (#202)*

BLM Response: The ISDRA is mainly funded through California State Parks, Off-highway Vehicle Trust Fund grants, congressionally appropriated funds, and by revenues generated on site from visitor use fees. At this time the majority of the funding for the dunes is from congressionally appropriated dollars. After the record of decision is signed for the RAMP, BLM will move forward in the preparation of a new fee demo plan for the Dunes. The new fee demo plan will address the future planned funding shortfalls from federal and grants dollars. Off-highway vehicles are an appropriate use of public lands, as stated in the Federal Land Policy Act, 1976. As such, BLM continues to strive to meet its multiple use mandate. Multiple designations allow the BLM to provide a quality motorized and non-motorized recreational experience, as well as meet our conservation goals. The North Algodones Dunes Wilderness provides for over 26,202 acres for non-mechanized recreation opportunities and is the only area in the Dunes designated exclusively for a particular type of recreation (non-mechanized).

#51 Public Concern: The BLM should separate OHV and pedestrian use areas.

Public Comment : *Trying to combine hiking with off-road vehicle use is foolish. Motor vehicles cannot safely share space with pedestrians and the laws against cars on sidewalks and pedestrians jaywalking are a necessary feature of daily life as society attempts to keep walkers and vehicles separated in space to preserve lives. The regulations on use of the dunes should be crafted to forbid pedestrians in the small area reserved for vehicles and to forbid vehicles in the larger area reserved for wildlife and pedestrians. Unless this is done, the BLM plan for the dunes is a blueprint for carnage. (#7581)*

BLM Response: Multiple land use designations allow BLM to provide a quality motorized and non-motorized recreational experience, as well as meet our conservation goals and requirements. The North Algodones Dunes Wilderness provides for over 26,202 acres for non-mechanized recreation opportunities. The preferred alternative in the FEIS also identifies an area in Buttercup allowing interpretive kiosks and trail for non-motorized recreation. The Adaptive Management Area would have a limited number of OHVs in order to allow a semi-primitive motorized recreational experience while conserving the natural and cultural resources.

#52 Public Concern: The Final EIS should address mitigation for regional OHV dispersal caused by any OHV limitations at the ISDRA.

Public Comment : *Implementation of any Alternative that further restricts OHV activity and decreases the available amount of area for OHV operations would require some type of mitigation. Further restrictions on OHV activity would cause OHV enthusiasts traveling to other sites, thus resulting impacts become an issue in those other areas that need to be addressed. (#7226)*

BLM Response: Regional dispersal of OHV activity as a result of visitor capacity limits at the ISDRA is not anticipated. Present and projected visitation will be able to be accommodated utilizing the management strategies identified in the Proposed RAMP and FEIS. The BLM is mandated to manage public lands to provide for multiple use and sustained yield.

#53 Public Concern: The BLM should reduce collision danger by opening more areas to OHVs.

Public Comment : *Glamis can and should be shared by off-road vehicles. There are plenty of out-of-bounds areas in ISDRA for other uses and increasing the size of available areas will reduce congestion and accidents. I do not think it will greatly increase the number of current users. It will just make it more safe and fun for existing users. . . . If the closure areas remain, it will create a dangerous two lane condition around the perimeter of the closed areas or the AMA (Adaptive Management Area). I have seen and experienced near miss head-on collisions and have heard of many fellow off-roaders saying the same. (#292)*

BLM Response: The temporary closures agreed to in November 2000, received concurrence with the understanding that the RAMP and EIS would address the Special Status Species issues. At the signing of the Record of Decision of this EIS, the closures will be lifted and the Proposed RAMP and Final EIS will take effect. However, the Dunes are a limited resource, and the BLM is mandated to manage public lands to provide for multiple use and sustained yield. Substantially increasing the size of the recreation area is beyond the scope of the FEIS. The California Desert Conservation Area (CDCA) Plan designated the ISDRA and several other areas for intensive OHV use. The 1987 RAMP provided guidance for management of the dunes based on the amount of use and current information regarding natural and cultural resources. This plan update was necessary because of changes in the numbers and types of use and additional information regarding natural and cultural resources.

The BLM and State of California have several rules and regulations in order to promote safer riding. These include the need for a whip flag, the prima fascia speed law, the helmet law, and required lighting. Even though these laws are in effect and enforced in the Dunes, OHV recreation is an inherently dangerous activity and requires the application of honed driving skills and common sense.

#54 Public Concern: The BLM should minimize restrictions at the ISDRA to preserve a sense of freedom.

Public Comment : *As to the other proposed rules for use of the Imperial Sand Dunes, there are already way too many laws and rules to obey in this world. People need a place where they can be left alone and at least feel for a brief weekend the illusion of freedom from rules. Please, no more rules, and reopen the dunes. (#192)*

BLM Response: Between 1980 and 2001 there has been an increase of 108% of registered OHV's in California. Between 1994 and 2001 there has been an increase of 74% of street licensed 4 wheel drive vehicles, and between 1980 and 2000 there has been a 48% decrease in the amount of acres available for OHV recreation (*Taking the High Road, CA State Parks, 2002*). Due to the increased number of OHV enthusiasts in California, and the decreased level of quality OHV recreation opportunities, visitation in the ISDRA has increased. This, coupled with new types of non-motorized recreational visitors (party types without OHVs), has caused a need for increased law enforcement. BLM has responded to this need and has already started to change the recreational experience toward a family atmosphere during the busy holiday weekends. The RAMP addresses the enforcement needs and provides additional tools for the responsible management of the Dunes. These tools (proposed rules) have been developed and are proposed to be adaptive so they may be used when needed and removed at a later date in order to ensure a quality recreational experience.

#55 Public Concern: The revised RAMP should not limit visitor numbers.

Public Comment : *The capacity limits are far too restrictive and do not allow for annual growth. Any limitations on the number of people visiting the dunes have a definite negative impact on the economy of local businesses in Yuma and the Imperial Valley. Why not allow the dunes to be accessed as they were prior to November 2000, then study the use patterns and later determine if any capacity limitations are truly necessary? (#191)*

Public Comment: *Arbitrary capacity limits on the various dune areas does not appear to be necessary, or justified at this time. If, after an adequate study period and current efforts to reduce lawlessness and other enforcement issues are not thought to be successful, then maybe rational capacity limits need to be considered for the major holidays that draw large crowds. Again, capacity would be reduced, by restricting entrance to campers and duners only. (#894)*

BLM Response: BLM has revised the visitor capacity limits in the FEIS. The capacities identified in the plan are based on the amount of visitors the various management areas can sustain and continue to meet Recreation Opportunity Spectrum (ROS) objectives. This is designed to protect the experience during the bulk of the year. There is a recognition that these limits will be exceeded, and the desired condition degraded, during peak use periods. Given the current use levels during the off-season there is little chance that capacity limits will be reached in the near future. Many state, federal, and private organizations use capacity limits as a management tool, including the BLM, National Forest Service, National Park Service, and numerous state parks. Multiple land use designations allow the BLM to provide a quality motorized and non-motorized recreational experience, as well as meet our conservation goals and requirements. Under the Endangered Species Act, the BLM is legally obligated to protect listed species. BLM, through the FEIS, has proposed monitoring efforts for a variety of plant and animal species that are intended to give managers the necessary information (data) to make decisions on the amount of OHV use allowed based on population sampling of listed and sensitive species. BLM believes this management component represents a balanced approach to our multiple use mandate, and a reasonable decision-making tool to protect federally listed and sensitive species.

#56 Public Concern: The BLM should adjust visitor use estimates by the type and length of visit.

Public Comment : *I believe tour bus stops or anything that would generally be regarded as a casual instance should not be counted towards visitor supply. . . . As a possible solution, the BLM should consider the possibility of requiring the purchase of a day use permit that would not be counted towards visitor supply. (#8010)*

Public Comment: *A visit may just be a short visit (20 minutes) or a week long camping trip. If there are going to be visitor limits then a distinction should be made as to how long a person will be staying in the dunes. It wouldn't be fair to count a bus carrying 40 people the same as ten families camping for a week. (#7298)*

BLM Response: The capacity limits set in the RAMP will allow for the current number of visitors to continue to recreate at the ISDRA. Should use increase to the point that the 15% or 20% triggers are activated, the actions taken will be focused on better educating and dispersing use to non-peak periods. Trigger resets have been established and the visitor capacity has been raised in the FEIS to include additional camping areas not previously addressed. Each year at the end of the season there will be an end of the year review of the visitation data. If it is found that visitation has exceeded the capacity for over 20% of the use season or if it is found that the capacity has been exceeded by over 15% for two years in a row, a determination will be made to enforce the capacity daily limit during the following use

season. BLM will use the off-season period (June-September) to notify the public that the capacity will be enforced. Visitors will have the option of reserving 50% of available campsites in advance. The remainder will be available on a first come first serve basis. BLM recognizes that there are several assumptions that were necessary to develop the capacity estimates contained in the Proposed RAMP and FEIS. During FY2003, the BLM will conduct a visitor use study to verify these assumptions. This will give the BLM the ability to more accurately count the number of visitors at the ISDRA. Inconsistent data in the DEIS has been corrected in the FEIS and Proposed RAMP.

#57 Public Concern: The revised RAMP should not include holidays in Recreation Opportunity Spectrum calculations.

Public Comment : *The six major holiday weekends and their shoulder days represent less than 6% of a year. Therefore, they can be considered rare exceptions rather than the norm. Until it is scientifically proven that these days impose a major negative impact beyond LAC on the ISDRA natural and cultural resources, these days should be excluded in carrying capacity estimates for trigger application. (#7226)*

BLM Response: The capacities identified in the plan are based on the amount of visitors the various management areas can sustain and continue to meet ROS objectives. This is designed to protect the experience during the bulk of the year. There is a recognition that these limits will be exceeded, and the desired condition degraded, during peak use periods. Given the current use levels during the off-season there is little chance that capacity limits will be reached in the near future.

#58 Public Concern: The revised RAMP should increase available camping spaces rather than limiting visit or numbers.

Public Comment : *There are a few areas I find puzzling. I'd like to start with the capacity limits (chapter 4, page 6), what type of information was used to arrive at the numbers suggested? I suggest increasing the amount of spaces available to camp in, instead of trying to limit the amount of campers. (Individual, No Address - #2561)*

Public Comment: *As stated by Dr. Haas that day [at the public meeting], the core intent of ROS triggers is to determine and signal the need for more visitor supply but not act as a deterrent as presently formatted in the DEIS. . . . Haas was emphatic stating several times, "Capacity does not mean closing the doors." This capacity needs to be increased when a trigger has been reached. . . . This is the true intent of triggers and capacity. It is obvious that CH2MHILL erred grievously in its interpretation of what capacities and triggers are and how they should be applied. We strongly encourage that the aforementioned information provided by Dr. Haas at the Workshop and in his February 15, 2002, draft be reconsidered for inclusion in the Final EIS and RAMP. (#7953)*

BLM Response: Refer to Chapter 3 of the FEIS for a description of ROS and the capacity numbers for the different management areas. BLM intends to increase the available camping spaces in designated management areas. Multiple designations allow the BLM to provide a quality motorized and non-motorized recreational experience, as well as meet our

conservation goals and requirements. The 20 percent trigger identified in the Proposed RAMP requires a study to investigate the appropriateness of increasing available camping spaces.

#59 Public Concern: The Final EIS should acknowledge that increased OHV use in some areas of the ISDRA is a direct result of OHV closures of other areas at the ISDRA.

Public Comment : *The plan uses mitigation and impact scenarios based on an established "baselines" and what is "measured" at present. In reading these, I noted that most figures were taken in 1999 and compared with what has happened in 2001 (or 2002 if data was available). In using these figures, the BLM and their partners in writing this plan failed to present to the reader the fact that an increase in usage in certain areas is a direct result of the closure of approximately 50% of the previously available riding areas. Specifically, this has resulted in the closure to camping along Ted Kipf Road. The closure notice states, in writing, "the unusual increase" in usage of these areas. It takes very little stretch of the imagination to realize that if the amount of users grow proportionately to the average population growth, then usage rates will grow disproportionately if the available use areas are cut significantly. (#7243)*

BLM Response: BLM acknowledges that increased OHV use in some areas is a direct result of OHV closures in other areas of the ISDRA. . Multiple land use designations allow the BLM to provide a quality motorized and non-motorized recreational experience, as well as meet our conservation goals and requirements. Under the Endangered Species Act, the BLM is legally obligated to protect listed species. BLM, through the FEIS, has proposed monitoring efforts for a variety of plant and animal species that are intended to give managers the necessary information (data) to make decisions on the amount of OHV use allowed based on population sampling of listed and sensitive species. BLM believes this management component represents a balanced approach to our multiple use mandates, and a reasonable decision-making tool to protect federally listed and sensitive species

#60 Public Concern: The BLM should base management on counts of visitors rather than estimates.

Public Comment : *The BLM should do its visitor count via aerial photos or observation or by on-the-ground, manual counting. The axle counter system currently being used is vastly inaccurate for reasons listed in the OHV group and ASA comments. The BLM must do more in depth studies to better determine an accurate capacity taking into consideration actual patterns including but not limited to areas between camping pads. (#7948)*

BLM Response: Prior to the 2001 dune season, collection of visitation numbers was done by car counters and hand counts. Spring of 2001, the BLM updated the visitation counters by placing 8 counters on all the hard surfaced entry areas in the ISDRA. The visitation numbers reflected in the DEIS are weekly counts for visitation in one week periods. The BLM uses the national standard average of 3.5 people per vehicle for the formula in determining the amount of visitation in the ISDRA. The BLM recognizes that there are several assumptions

that were necessary to develop the capacity estimates contained in the Draft RAMP and DEIS. During FY2003, the BLM conducted a visitor use study to verify these assumptions. Instead of the 3.5, which is used nationally for the number of visitors per vehicle, those areas that were surveyed the number appeared to be 2.3 dunes-wide, however not areas of the dunes were surveyed. If BLM were to use the 2.3 or the number that best reflects the number of visitors per vehicle at the dunes, rather than the national number of 3.5 the visitor supply number would be reduced dramatically. This would not have a bottom line change in management since all calculations were based on the number of vehicles per acre.

#61 Public Concern: The Final EIS should justify OHV use limitations in the Adaptive Management Area.

Public Comment : *No justification is given to limit access to the [Adaptive Management Area]. (#8253)*

Public Comment: *The provision for only 525 vehicles per week seems odd. Where did this number come from? How do you know that this is a sufficient number? How do you know that this system will work? If this was to be instituted shouldn't a pilot program that allows for comments be instituted before it is written into the plan? What if it is found that the current usage rate does not impact the area as suggested, if written into the plan, it cannot be reversed. (#7951)*

BLM Response: The BLM is mandated to manage public lands to provide for multiple use and sustained yield. To allow use to continue within the Adaptive Management Area, BLM must be able to ensure that there will not be a degradation of all sensitive, threatened, and endangered plant and animal species and their habitats. To do this, BLM has designed the adaptive management approach described in the RAMP. Through monitoring of use and natural resources BLM will be able to identify changes to the adaptive management program that will provide for the optimum amount of use for all user groups while ensuring sustainable populations of these species. The 525-vehicle limit is BLM's estimated number of vehicles that can be allowed while still meeting its goals in the Adaptive Management Area and is based on historical use in the AMA. With new data there would be a reassessment of the challenges and an adjustment of management objectives and planned actions to the adaptive management area.

#62 Public Concern: The BLM should not limit use i n the Adaptive Management Area or other areas unless or until monitoring demonstrates a need for use limits.

Public Comment : *We suggest that a permit system be initiated only in the unlikely event that monitoring results are deemed to warrant such a program based on resource conditions. Since no destinations lie within the suggested boundary, it is our belief that aerial photographs or spotters in the Central Dunes Management Area, even on holiday weekends, will reveal little if any usage within the suggested boundaries. Therefore, a permit system would not be required. (#7226)*

BLM Response: Adaptive management is a mechanism for integrating scientific knowledge and experience for the purpose of understanding and managing natural systems such as the ISDRA ecosystem. BLM will manage the Adaptive Management Area in a manner that

provides recreational opportunities while allowing for the conservation of habitat and plants and species of concern. The initial limit of 525 vehicles in the Adaptive Management Area was derived using ROS coefficients. BLM believes this management component represents a balanced approach to its multiple use mandate and a reasonable decision-making tool to protect federally listed and sensitive species. Under the Endangered Species Act, the BLM is legally obligated to protect listed species. BLM monitored the interim large closure in 2001 and 2002 and had sufficient staff to accomplish its conservation goal. Weekly over flights of the area and OHV patrols on the weekends were used to assist the enforcing/monitoring of the area. BLM management actions will monitor the AMA and revise the permit program if necessary.

Vendors

#63 Public Concern: The BLM should expand vendor opportunities at the Glamis Management Area.

Public Comment: *I would personally like to suggest that the BLM expand vendor opportunities so that spare parts and repairs are more available in the Glamis area. While I understand this presents unique challenges to meet BLM regulations and equitable "taxation" for goods and services rendered, it is far less of a challenge than providing and funding additional law enforcement activities and the additional monies collected could be used to help fund these very activities. (#7829)*

BLM Response: BLM recognizes the service and convenience that the vendors and private business in the local area provide to the ISDRA visitors. The Preferred Alternative in the FEIS would allow limited short term weekend vending to continue in the ISDRA, with holiday exceptions, as well as allow long term vending on the vendor pad at Gecko Road. The fee to vend in the dunes would be addressed in the new fee demo business plan.

#64 Public Concern: The BLM should not allow mobile vendors at the ISDRA.

Public Comment: *The mobile vendors should not be allowed because they are a safety hazard. I have had them pull out in front of me on Gecko Rd. when I was 10-20 ft. from them. They block traffic and then keep it blocked, even if emergency vehicles need to pass. I have seen kids almost get run over trying to get to the ice-cream trucks. (#8241)*

BLM Response: The Preferred Alternative in the FEIS does not change the policy that has been proposed for mobile vending and it would be allowed to continue in the ISDRA. Existing regulations require mobile vendors to park at least 10 feet off the road and not obstruct traffic.

#65 Public Concern: The Final EIS should specify what vendor services will be permitted at the ISDRA.

Public Comment: *Chapter 1-13, paragraph 4, the statement, "A revised RAMP will limit vendors and concessionaires in the ISDRA to those that provide food, goods, or*

services that support OHV use and camping" is too vague. Who will decide what is appropriate? Please be more specific. (#8364)

BLM Response: The preferred alternative in the FEIS would allow products and services to be sold with that provide food, goods, or services that support OHV use and camping. However, the BLM has a list of items prohibited from commercial sale in the ISDRA that do not contribute to a safe or legal visit.

#66 Public Concern: The BLM should address the impact of vendors to the local economy.

Public Comment : *Their [vendors] local economic impact (taxes, permits, supplies purchased and resold at the dunes) should be considered before implementing any decisions on their stays. (#8255)*

BLM Response: The BLM recognizes the service and convenience that the vendors and private business in the local area provide to the ISDRA visitors. The preferred alternative in the FEIS would allow limited short term weekend vending to continue in the ISDRA, with holiday exceptions, as well as allow long term vending on the vendor pad at Gecko Road. The fee to vend in the dunes would be addressed in the new fee demo business plan. The socioeconomic effects of the preferred alternative are addressed in the FEIS.

Law Enforcement

#67 Public Concern: The BLM should justify the assertion that North Algodones Wilderness trespass is a problem.

Public Comment : *Page 15 Par. 4 refers to ". . . the problem of trespass in the NA Wilderness." Any accusation statement should be quantified. Again, the reader is led to believe that trespass is widespread and blatant. If this is to be an unbiased management plan, this type of verbiage should be left out. In addition, the BLM response to question #10 on page 35 in fact states that ". . . total frequency of trespass is not known." Assumption of a problem is not good management. (#8508)*

BLM Response: In general, trespasses in the North Algodones Wilderness Area are relatively infrequent and impacts from such activities have had a minor impact. The FEIS more accurately reflects this situation.

#68 Public Concern: The BLM should establish a 15 mile per hour speed limit in the proximity of camping pads along Gecko Road .

Public Comment : *Lower the speed limit to 15 MPH in the proximity of all existing camping pads. As more pads are constructed, lower the speed limit in those sections of the road as well. Ultimately, the whole of Gecko Road would have a 15 MPH speed limit. . . . With the decrease in speed along the road, public safety would be further enhanced. (#7226)*

BLM Response: There is currently a rule in effect that limits speed to 15 mph within 50 feet of any group of people or campsite. BLM is planning to train several rangers in the use of radar guns to assist in enforcing these rules.

#69 Public Concern: The Final EIS should include a clear law enforcement plan and methodology.

Public Comment : *Management of the Algodones Dunes has become so dangerous that a recent Department of Interior (DOI) "Law Enforcement Special Evaluation" concluded that the dunes are "unsafe for family recreation activity due to the use of drugs and alcohol, and the problems of lawlessness that occur with such use." The DOI recommends that BLM rangers be issued riot helmets, batons, and gas masks for their own safety. On average there are about 29 law enforcement staff present during each holiday weekend. Under the action alternatives (2, 3, 4), the BLM proposes to increase permanent law enforcement for the six major holiday weekends (BLM 2002). Recently, the El Centro Office increased their staff from five permanent positions to eight, and it expects to fill four more positions by the end of the year to fulfill the new RAMP. However, the DEIS does not provide a clear law enforcement plan and does not offer evidence of a methodology. (#8051)*

BLM Response: BLM has a detailed plan in place to deal with the current and anticipated future conditions. For officer safety and tactical reasons this information cannot be given to the public and cannot be included in the EIS.

#70 Public Concern: The BLM should use adaptive management principles to implement curfews and alcoholic beverage bans.

Public Comment : *I recommend that if curfews and an alcohol ban become part of the RAMP, the elements of adaptive management be used in their implementation. (#8300)*

BLM Response: The Proposed RAMP would continue to emphasize a co-operative approach to law enforcement. Local, State and Federal law enforcement officers, working together, would provide increased law enforcement. In addition, several management techniques would be implemented to increase law and order. These techniques include establishing two new tools. These tools are curfews and restrictions in areas of historic lawlessness and limiting alcohol use to established camp areas. Visitor use and incident data are currently monitored and will be used to evaluate the specific need for these tools and to develop the criteria for their use. These tools would be used as needed, but are not expected to be continuously required. Application of current laws, such as speed limits and reckless driving, will be used initially to address safety issues. Curfews and restrictions will be used as an additional tool when existing laws and actions are not producing a safe environment. It is anticipated that these actions would restore a safe family atmosphere at the Imperial Sand Dunes Recreation Area.

#71 Public Concern: The BLM should designate the Imperial County Sheriff's Office (ICSO) as the lead law enforcement agency.

Public Comment : *The Imperial County Sheriff's Office should be designated as the lead law enforcement agency. The ICSO has primary law enforcement responsibility in Imperial County and, as such, should be the lead law enforcement agency at the ISDRA. Recent Off-Highway Motor Vehicle Recreation (OHMVR—green sticker) law enforcement grants to the Imperial County Sheriff resulted in increased involvement of the Sheriff at the ISDRA. Since then, a definite reduction in lawless behavior has been documented by the BLM. (#7226)*

BLM Response: BLM maintains the lead agency role for the following reasons:

- a. ICSO has the same staffing level problems as the BLM. They have a large county to provide enforcement to.
- b. ICSO has an OHV team that provides assistance on off weekends but the team currently consists of 2-4 officers.
- c. Due to staffing and budget constraints they are only able to provide an increased level of assistance on specific dates during specific hours. The BLM is still providing the majority of the enforcement during all holiday events.
- d. ICSO is not a resource protection agency.

ICSO is a tremendous asset to the overall enforcement effort and has been a great addition to the BLM's law enforcement strategy. ICSO, along with several other agencies, has helped the BLM provide the level of service and support desired for many years. Many BLM and Forest Service Rangers who work in the ISDRA have State Peace Officer status in the county granted by the sheriff. All arrests and a large percentage of citations written by the Rangers are processed through the Imperial County courts under state authority.

To address the issue of funding, ICSO did receive OHV dollars to fund their assistance during holiday weekends, but the BLM is still providing the majority of the funding for every other external agency. During holiday weekends the BLM, ICSO, and the California Highway Patrol (CHP) share a command role.

#72 Public Concern: The BLM should use the most accurate and up -to-date information to establish law enforcement staffing levels.

Public Comment : *Making sure that there are trained and equipped law enforcement personnel in the ISDRA works to the benefit of all. However, given that the visitor projections in the DEIS are flawed, it is difficult to determine exactly how many*

personnel are needed and at what time during the season those numbers need to be augmented or changed. As with visitor levels, I encourage the BLM to revisit estimates for law enforcement personnel once an accurate study of visitor levels, arrest statistics, injury reports, incident reports, and citations is completed. Another factor to consider as these levels are reviewed is the impact that the "Zero Tolerance" policy, which went into effect in April of 2002, has had on these statistics. (#7695)

BLM Response: The Proposed RAMP would continue to emphasize a co-operative approach to law enforcement. Local, State and Federal law enforcement officers, working together, would provide increased law enforcement. In addition, several management techniques would be implemented to increase law and order. These techniques include establishing two new tools. These tools are curfews and restrictions in areas of historic lawlessness and limiting alcohol use to established camp areas. Visitor use and incident data are currently monitored and will be used to evaluate the specific need for these tools and to develop the criteria for their use. These tools would be used as needed, but are not expected to be continuously required. Application of current laws, such as speed limits and reckless driving, will be used initially to address safety issues. Curfews and restrictions will be used as an additional tool when existing laws and actions are not producing a safe environment. It is anticipated that these actions would restore a safe family atmosphere at the Imperial Sand Dunes Recreation Area. Any temporary or permanent increases or changes in staffing would be considered based on that information.

#73 Public Concern: The BLM should increase the presence of law enforcement rather than creating new restrictions

Public Comment : *With an adequate enforcement presence at the Dunes you would significantly reduce the concerns from being unmanageable to being managed appropriately. We don't need more restrictions; we need more presence of those who are responsible to enforce the existing laws and restrictions. This will ensure compliance in a manner that is practical and beneficial to everyone. (#212)*

BLM Response: BLM is currently working with several agencies and various groups on finding ways to increase the law enforcement staff until lawless issues are addressed. BLM plans to continue the increased holiday enforcement efforts with the cooperation of several outside agencies including Imperial County Sheriff deputies and California Highway Patrol personnel. BLM is also working with ICSO to increase enforcement officers on off-weekends.

BLM will monitor incidents starting in 2003 to determine if more restrictive methods are needed. The information will be evaluated continually from 2003 on and additional measures can be implemented at any time based on incident trends beginning in 2004.

#74 Public Concern: The BLM should use volunteers to augment the law enforcement staff.

Public Comment : *We support increased use of volunteers. The BLM El Centro Resource Area has a varying record of inclusion and reliance on volunteer efforts. A commitment to the use of volunteers and programs such as the Dune Patrol, the*

Junior Ranger Program, the Technical Review Team, and dune clean-up efforts is imperative. We strongly believe the amount of staff time expended on volunteer management and direction pays huge dividends: both in on the ground actions and management perceptions. The efforts of the organized OHV groups are underutilized due to the lack of the BLM's commitment to plan and organize volunteer support. (#8256)

BLM Response: Because of many liability and legal issues volunteers cannot issue citations and cannot be placed in harms way. However, the BLM would like to encourage people to volunteer and help provide eyes and ears in the ISDRA to help in reducing incidents.

#75 Public Concern: The BLM should not establish curfews which would merely shift problems into more remote parts of the ISDRA.

Public Comment : *Curfews would only change the location of the gatherings from known, easily accessible and monitored locations to places farther out in the dunes where law enforcement officers cannot get in their current 4x4 vehicles. Rescue and enforcement efforts in these more remote locales would be difficult and costly. Failure on the part of the BLM to provide visitor services (rescue) to more remote gatherings could be cause for litigation in the event of injury or death that could be argued was proximately caused by this action. (#7887)*

BLM Response: Part of the strategy involving a curfew would also address the problems of relocation. After reading the public comments on the DEIS, BLM has decided to continue with the increased enforcement efforts that were implemented in January 2002. During the 2003 season the BLM will conduct specific monitoring to determine the success of this approach. If the results of the monitoring indicate that no significant reductions in visitor and employee safety have occurred, and no significant reduction in DUIs, assaults, and other serious incidents can be documented BLM will determine if stronger measures are needed such as those items identified as tools in the law enforcement toolbox (curfews and/or partial alcohol restrictions).

#76 Public Concern: The BLM should continue its zero tolerance law enforcement program to curb lawlessness in the hills rather than establish curfews.

Public Comment : *I do not believe that the enforcement of curfews is needed at all. Enforcement of the Zero Tolerance law enforcement that was implemented on 1/1/2 of this year has shown much promise. This Zero Tolerance policy should be allowed to continue as long as it is working in the best interest of ISDRA. Curfews are only punishing those of us that are responsible Duners and not really taking care of the real problem which is the rowdy crowd that uses the Dunes as a place to party with their friends and get involve in lawless behavior. Using pinch points is a very effective way to get the message across to these lawless individuals and is supported by many of us in the OHV community. (#8530)*

BLM Response: The Proposed RAMP would continue to emphasize a co-operative approach to law enforcement. Local, State and Federal law enforcement officers, working

together, would provide increased law enforcement. In addition, several management techniques would be implemented to increase law and order. These techniques include establishing two new tools. These tools are curfews and restrictions in areas of historic lawlessness and limiting alcohol use to established camp areas. Visitor use and incident data are currently monitored and will be used to evaluate the specific need for these tools and to develop the criteria for their use. These tools would be used as needed, but are not expected to be continuously required. Application of current laws, such as speed limits and reckless driving, will be used initially to address safety issues. Curfews and restrictions will be used as an additional tool when existing laws and actions are not producing a safe environment. It is anticipated that these actions would restore a safe family atmosphere at the Imperial Sand Dunes Recreation Area. There is a need to change the atmosphere that many of the “Party going” visitors to these areas adhere to. The goal is not to penalize all the visitors to these areas, but rather to restore these areas to the family oriented places they used to be.

#77 Public Concern: The BLM should allow alcoholic beverages in the ISDRA.

Public Comment : *Alcohol Ban: Should be just like boating. Drinking in camp is OK. Give a DUI to drunk riders. (#168)*

Public Comment : *Alcohol abuse committed by a few OHV users does cause problems. However, banning alcohol use by responsible OHV users will only serve in moving the problems associated with alcohol abuse to other areas, such as in camp or further out into the dunes. This has the potential to increase confrontations between alcohol abusers and other visitors in a potentially more dangerous situation. We feel Zero Tolerance should be given a chance to work. We personally have witnessed its effectiveness in limiting and eliminating problems over the past year, particularly on the holiday weekends. (#7804)*

BLM Response: Part of the strategy involving an alcohol ban or curfew would address the problems of relocation. After reading the public comments on the DEIS, BLM has decided to continue with the increased enforcement efforts that were implemented in January 2002. During the 2003 season the BLM will conduct specific monitoring to determine the success of this approach. If the results of the monitoring indicate that no significant reductions in visitor and employee safety have occurred, and no significant reduction in DUIs, assaults, and other serious incidents can be documented, BLM will determine if stronger measures are needed such as those items identified as tools in the law enforcement toolbox (curfews and/or partial alcohol restrictions). When considering the use of these tools the BLM will consult with Imperial County and other cooperative law enforcement agencies. After looking at all the data and considering other agency and outside input, BLM will make the final decision on implementation. Beginning in the 2004 season these measures may be implemented and or lifted at anytime based on the information gathered from the ongoing monitoring of incidents.

#78 Public Concern: The BLM should ban alcoholic beverages in the ISDRA.

Public Comment : *I feel that there should be a complete alcohol ban at the Imperial Sand Dunes. Recreational driving and alcohol do not mix, never have and never will.*

It is obvious that the off-road people feel that in order to enjoy their play toys, they have to have alcohol in order to do so. (#918)

Public Comment: *Banning alcohol is also an effective way to reduce the violence and bad behavior. Please keep the ban on alcohol in the final management plan. Alcohol has no place in the dunes. We have participated in many cleanups in the dunes, or many times we go search out things to find in the sand. 99% of the trash or objects left in the dunes are empty beer bottles! (#7226)*

BLM Response: The Proposed RAMP would continue to emphasize a co-operative approach to law enforcement. Local, State and Federal law enforcement officers, working together, would provide increased law enforcement. In addition, several management techniques would be implemented to increase law and order. These techniques include establishing two new tools. These tools are curfews and restrictions in areas of historic lawlessness and limiting alcohol use to established camp areas. Visitor use and incident data are currently monitored and will be used to evaluate the specific need for these tools and to develop the criteria for their use. These tools would be used as needed, but are not expected to be continuously required. Application of current laws, such as speed limits and reckless driving, will be used initially to address safety issues. Curfews and restrictions will be used as an additional tool when existing laws and actions are not producing a safe environment. It is anticipated that these actions would restore a safe family atmosphere at the Imperial Sand Dunes Recreation Area. There is a need to change the atmosphere that many of the “party going” visitors to these areas adhere to. The goal is not to penalize all the visitors to these areas, but rather to restore these areas to the family oriented places they used to be.

#79 Public Concern: The BLM should reduce traffic accidents by requiring all licensed vehicles to remain within 50 feet of campsites and roads.

Public Comment : *The "zero tolerance" plan has curbed many unwanted accidents and rowdiness. Additional wording to the effect: "no licensed vehicles are permitted more than 50 feet from campsites and roads" would greatly reduce traffic accidents, drunk driving, and the like. (#7831)*

BLM Response: The street legal vehicles have the same right to operate in the ISDRA as Green Sticker vehicles. It is unclear to BLM how restricting licensed vehicles to within 50 ft. of roads and campsites is going to reduce accidents.

#80 Public Concern: The BLM should not penalize all OHV users for the acts of a few by restricting use at Competition Hill.

Public Comment : *I will devote this letter to what seems to be the real problem, and that is the violence and lawlessness at Competition Hill at night on holiday weekends. I have heard of some proposals to close or limit this and other areas to use. I feel that taking away this truly unique recreational area has the same logic as banning the sale of spray paint to everyone in the U.S. because a small handful of people use it for graffiti. The number of people causing problems truly is small. It may not seem so observing things late at night, but the fact is a small group instigates things and others follow who would not start things on their own. The individuals in question are*

not even there to use the Dunes but merely to "party." Very few even have an OHV of any kind and are only seen at night. These are local youths (teens and early 20s) who come in 4WD trucks and park in the mid to back rows. The front row is taken up by people who are there to race and you would be hard pressed to find a significant problem in that area. If the area is closed the legitimate users will suffer and the "Partiers" will merely go somewhere else unaffected by the mess they caused. (#6005)

BLM Response: There is a need to change the perception that Comp Hill and other similar areas are big party spots and that people can do whatever they want. BLM's goal is not to penalize all visitors to these areas but rather to restore these areas to the family oriented places they used to be.

Infrastructure

#81 Public Concern: The revised RAMP should include a realistic assessment of budgetary constraints of the proposed plan.

Public Comment : *Alternatives proposed should include a realistic assessment of budgetary constraints placed upon BLM, and their relationship to proposed actions. Unfunded mandates in this 475,000 acre area are, in reality, no mandates; the public should be aware of what is possible to do with the resources available. (#8278)*

BLM Response: The Proposed RAMP management policies, plans and actions are based on best estimates of future budgets. Funding availability is difficult to predict, particularly for a 10 to 15 year period. BLM has attempted to temper its desire to give the best management possible to the ISDRA with realistic budgetary projections.

#82 Public Concern: The BLM should not link agency funding and continued OHV use at the ISDRA.

Public Comment : *I am concerned at the phrasing of page 52, Pp 2. [The statement] that services will be "discontinued permanently . . . until it can obtain funding," suggests that the area will be closed to visitors. Is that the intent? If so I feel that is a loophole, [that] opponents of the ISDRA have a way to shut the area down bureaucratically. (#8508)*

BLM Response: Some levels of services are linked to Green Sticker funds and dollars collected from Fee Demo. The development of the business plan will address this issue further.

#83 Public Concern: The BLM should justify its claim that extending Gecko Road would violate the ESA.

Public Comment : *Page 2-4 Section 2.1.1 Gecko Road Extension. The DEIS states that extending Gecko road would violate the ESA, but there is no data to back this statement up. The area in question has been released from WSA 362. Extending*

Gecko road would provide more camping areas and thin out some of the overcrowding. (#8267)

BLM Response: A proposal to extend Gecko Road south would likely result in a jeopardy opinion from the U.S. Fish and Wildlife Service because of potential impacts to the Peirson's milk-vetch. This opinion is based upon conversations between BLM biologists and U.S. Fish and Wildlife personnel.

#84 Public Concern: The BLM should grade the Wash Road more often.

Public Comment : *DRAMP Page 81, Wash Road graded regularly: My understanding is that the fees were supposed to be used in part to grade the road. It hasn't been graded as often as I would like, though. I noticed in the budget that the estimated yearly cost is \$689/mile, and that the first year estimated cost is \$689. Does this mean that only the 1st mile will be graded? How often is "regularly?" Personally, I think it should be graded at least before every big weekend. (#7595)*

BLM Response: BLM grades roads as often as need, funding and manpower allows.

#85 Public Concern: The BLM should provide parking on the north side of Highway 78.

Public Comment : *Another issue would be to provide hikers and environmentalists a place to park their vehicles on the north side of Highway 78 so they would have a safe place to enjoy the dunes. (#8039)*

BLM Response: No facilities are proposed in the North Algodones Wilderness Area. Limited parking is available at the Osborne Overlook on the south side of Highway 78.

#86 Public Concern: The BLM should recognize that building a ranger station at Osborne Overlook will compromise the natural, undeveloped character of the area and should not be built.

Public Comment : *One part of the report suggests building a multi-million dollar facility at the top of Osborne Overlook. While many visitors brave the elements in this particular area for a short duration, the wind and blowing sand make this a poor choice for a BLM facility. Since this facility would be used to capacity only about 15 days per year, the amount of money being considered for this project could be much better allocated to increase law enforcement and to reduce the congestions in camping areas and the dunes. (#7829)*

BLM Response: Based on many factors, including public comments received, the Preferred Alternative for the FEIS proposes not to construct a ranger station at Osborne Overlook. A new ranger station is instead to be constructed at the present site on Gecko Road. BLM does plan to utilize the Osborne Overlook area during peak holiday weekends. The FEIS and Proposed RAMP reflect this change.

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APPENDIX B

MONITORING REPORT

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Introduction

This appendix provides the methodology that will be used to monitor species and habitats of concern in the ISDRA. Through research, monitoring, and analysis of the monitoring data, BLM will determine the impacts to species and habitats of concern due to recreational use of the ISDRA, and use this information to make management changes, if necessary. Management of recreational use throughout the dunes, especially in the adaptive management area (AMA), will be evaluated periodically in light of the results of this research and monitoring and revised as needed. The monitoring information will be used to make annual changes in the number of permits that will be issued for use of the AMA and to determine whether and when the management plan for the ISDRA needs to be amended.

This monitoring/study plan is a dynamic document. Based on periodic reviews of the quality of the data collected and the usefulness of the data for making management decisions, it will be amended as necessary in order to ensure that the most important information is available to the manager for decision-making.

Special Status Plant Monitoring And Management

The Algodones Dunes support numerous dune-endemic plants. Of special interest in terms of conservation are species whose distribution is restricted to the Algodones Dunes or whose status indicates that special management is necessary to ensure the ongoing persistence of the species. Three dune-endemic plants will be the target species of an intensive monitoring effort in the Algodones Dunes:

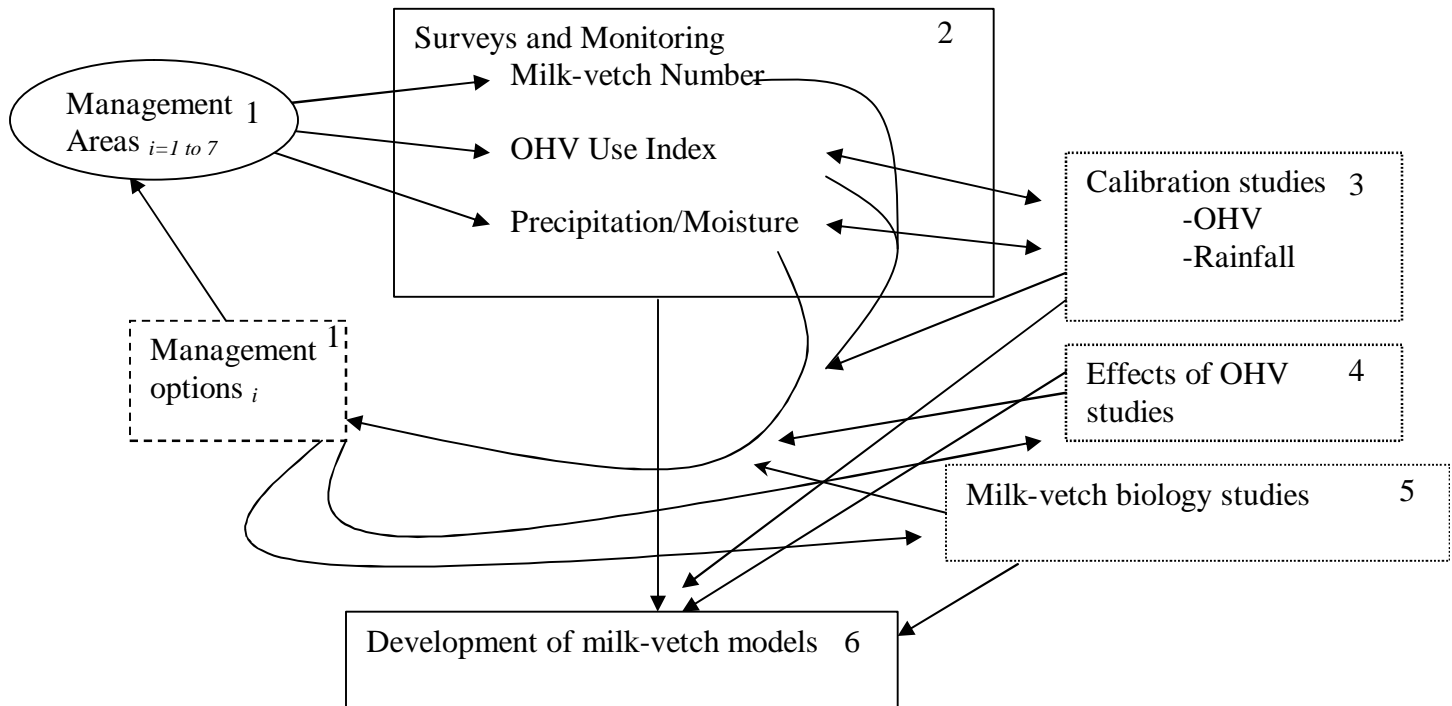
- Peirson's milk-vetch - *Astragalus magdalenae* var. *peirsonii* (ASMAP)?
- Algodones Dunes sunflower - *Helianthus niveus* ssp. *tephrodes* (HENIT)?
- Sand food - *Pholisma sonora* (PHSO)

Peirson's milk-vetch will receive the highest level of attention, since this species was federally listed as threatened primarily due to threats posed by OHV activity in the Algodones Dunes. The monitoring and research pertaining to ASMAP will provide information that may be useful in managing all target plant and animal species in the dunes.

Peirson's Milk-vetch (ASMAP)

A flow chart of the general management scheme that will be used to adaptively manage the ISDRA to protect Peirson's milkvetch while providing the opportunity for recreation activities is provided as Figure 1.

Figure 1. Schematic of Peirson's milk-vetch monitoring and management plan.



Management Areas (Oval 1). The ISDRA will be managed in 9 units, 7 of which (listed below) support the target special status plants. This is the basis on which management will be applied. Each Management Area will be subject to an initial management option, which will be subject to change based on the status of milk-vetch in that unit and the results of studies.¹

Management Area	Initial Management Option
Mammoth Wash	Open to OHV use
North Algodones Wilderness	Closed to OHV use
Gecko	Open
Glamis	Open
Adaptive Management Area (AMA)	Open to 525 riders/day
Ogilby	Open
Buttercup	Open

Surveys and Monitoring (Box 2). The monitoring surveys will illustrate the “state” of system variables including ASMAP abundance and distribution, ground moisture/ precipitation, and OHV use. These three state variables will be analyzed to test predictions based on management options that are currently being implemented and to provide information on

¹ Changes to the Adaptive Management Area will be made annually (after an initial period of sampling—see text), as necessary, through adjustments in the number of permits issued. If changes in OHV use and/or distribution are necessary in the other management areas, these would be made through the plan amendment process in consultation with the U.S. Fish and Wildlife Service.

which management option should be chosen in the future. These surveys will allow a statistical inference to be made to each management area. The initial prediction, based on BLM's understanding of current milk-vetch distribution and abundance, is that milk-vetch abundance and distribution in each management area will not change between years (that have comparable levels of rainfall above or equal to the long-term mean) given the proposed management options (see Box 1).

ASMAP SURVEYS

For the first four years of monitoring plan implementation, annual estimates of density and population size will be made in each of the seven management areas that support ASMAP. These estimates can also be combined into a single estimate for the entire ISDRA using the appropriate formula for stratified random sampling. Milk-vetch sampling will be conducted in the spring of each year, beginning at the time most ASMAP individuals are in flower. Based on monitoring between 1998 and 2002, this period begins around the last week of March.

Following the collection of four years of density estimates, the frequency of monitoring may be reduced to correspond to years in which the precipitation that occurs between July and November is sufficient to ensure precipitation levels that meet or exceed the long-term mean (see ground-moisture/precipitation section below) of precipitation levels between July and March. The reason for reducing the frequency of monitoring to good-rainfall years is that the abundance of ASMAP in any spring is highly correlated with the amount of rainfall in the growing season immediately preceding that spring (Willoughby 2001; Willoughby, unpublished data). Between wetter years, the milk-vetch population declines as plants die and are not replaced due to lack of germination. Monitoring during poor rainfall years could result in a lower encounter rate for ASMAP plants that is not reflective of the species' status. Monitoring during poor rainfall years could, however, provide information concerning the persistence of adult plants and the relative importance of these plants to seed bank contributions.

Sampling Objectives: Although all 3 target plant species will be sampled, the following sampling objectives are based on ASMAP. It is anticipated that similar precisions will also be obtained for the other 2 species (Algodones Dunes sunflower and sandfood). There are two sampling objectives, one for the yearly estimates and one for change detection. For the yearly estimates, sampling will be designed to achieve estimates that are within 30% of the true total population size at the 95% confidence level for each of these management areas. For change detection, the sampling objective is to detect a 30% change between two average-to-average rainfall years with a statistical power of 90% and a false-change (Type I) error rate of 10%.

Sampling methodology. The highly clumped nature of ASMAP makes the use of belt transects (long, narrow quadrats) mandatory in order to achieve reasonably precise estimates (Elzinga et al. 1998 and 2001). Pilot sampling was conducted on ASMAP and HENIT in 2001 and on ASMAP, HENIT and PHSO in 2002 using belt transects run due west-east across the dunes. The belts ranged from 5.8 km to 15.9 km long depending on the extent of

the dunes crossed by each transect. In 2001 the number of plants of each species was recorded separately in 1m wide belts on each side of the transects, so that separate coefficients of variation could be calculated for both 1m and 2m wide belts. Coefficients of variation (CVs) were unacceptably high for both belt widths, and samples of 34 belts yielded imprecise estimates of population size (Table 1 shows the CVs and precisions for ASMAP for different belt widths). Accordingly, in 2002 pilot sampling was expanded to add belt widths of 5m and 10m. The 2002 sampling included PHSO in addition to ASMAP and HENIT. In 2002 the number of plants of each species was recorded separately in 1m, 2m, 5m, and 10m wide belts on one side of each of the transects, so that separate coefficients of variation could be calculated for belts of all 4 widths. As expected, CVs progressively decreased and precision progressively improved as the belt widths were increased, but even the 10m belt width still resulted in a rather high CV, and a sample of 34 belt transects resulted in a population estimate for ASMAP of $\pm 62\%$. These pilot data indicate that even wider belt widths should be used if practical to reduce the CV even further and minimize the number of sampling units that will be needed to achieve sampling objectives.

One generally strives for a sampling design that results in a CV of less than 1.0, but because of the very scattered nature of its occurrences this may not be a practical goal for ASMAP. It is important to note, however, that these pilot data were collected using belts oriented with their long sides in a west to east direction (they were oriented in this direction because the pilot data were collected ancillary to a different monitoring study that began in 1998). Belt transects are most efficient when they are oriented to follow a gradient that is known to be related to the attribute being sampled. Both ASMAP and HENIT occur in bowls at the bottom of SE facing slipfaces and on the gentle NW-facing slopes that run SE from the bowls (Phillips et al. 2001 and 2002; personal observations). The two species gradually disappear as the NW-facing slopes approach sand ridges. Thus, the plant species are responding to the NW-SE gradient consisting of a repeating pattern of relatively gentle NW-facing slopes, ridges, slipfaces, and bowls. Belts, therefore, that are oriented in this same NW-SE direction should prove to be more efficient in terms of reducing sampling error than W to E belts.

Table 1. ASMAP coefficients of variation (standard deviation divided by mean) and precisions expressed as 95% confidence intervals from a sample of 34 belt transects. CVs and precisions for the 1m belt width are the average of two samples in 2001 and one sample in 2002. Those for the 2m belt width are the average of 1 sample in 2001 and one sample in 2002.

Belt width	Coefficient of Variation	Precision (+/- percent of mean)
1 m	2.659	92.78%
2 m	2.320	80.94%
5 m	1.984	69.24%
10 m	1.769	61.73%

A belt width of 25m is likely the widest practical width for ASMAP. Although belt widths as wide as 25m are problematic for some species, particularly in dense vegetation, the size of ASMAP individuals, coupled with the sparse vegetation in the dunes, make belts this wide practical.

Belt transects will be positioned using a restricted random design (Elzinga et al. 1998 and 2001) within each of the 7 management areas listed above.

Transects will be traversed in a NW to SE direction corresponding to the dune gradient discussed above. Baselines will be established at the NW edges of each of the management areas. An initial sample of 10 belt transects will be taken within each of the management areas. To accomplish this, the portion of the baseline that lies above the population to be sampled will be divided into 10 equal-sized segments. Within each of these segments, a single belt transect will be randomly positioned. The resulting 10 transects will extend the length (NW-SE) of the MA. The means and standard deviations derived for ASMAP will then be calculated and used to calculate the sample sizes required to achieve estimates of 30% of the mean. Additional transects will be added to the previous 10 to achieve this sampling objective. The additional transects will also be added using a restricted random design. This will be accomplished by dividing the same baseline used to position the initial 10 belts into the number of segments required to position the additional belts. Each additional belt will then be randomly positioned within each of the new segments, except that no additional belt will be placed in the same position on the baseline as one of the initial 10 transects (i.e., sampling will be without replacement).

Once established, the same transects will be sampled in succeeding years. This will be accomplished by the use of global positioning system (GPS) units. Many waypoints for each transect will be entered into the GPS units to ensure that observers walk the same transects each year.

Bias resulting from the edge effect associated with the use belt transects will be controlled by the following rule: plants with rooting parts touching the left (NE) side of the boundary of each belt transect will be counted in, while those touching the right (SW) side of the line will be counted out.

The following information will be collected for ASMAP: (1) total number of individuals observed; (2) number of flowering individuals; (3) number of non-flowering individuals; (4) number of individuals older than 1 year (this can be determined by the presence of basal leaf/branch scars); (5) number of individuals with apparent physical damage from OHVs; and (6) number of individuals with damage from other sources (e.g., insects). This information will be recorded in 25m segments along belts, which will allow comparison of information collected in 25m x 25m subplots with OHV use monitoring, discussed below. The GPS coordinates of the beginning of each 25m x 25m subplot containing plant species will also be recorded.

Analysis of Peirson's milk-vetch monitoring: The population estimates for ASMAP within each of the management areas will be graphed by year with error bars corresponding to 95% confidence intervals.

For each management area comparisons between densities in two average-to-above-average rainfall years will be made by means of paired *t* tests.

Ground Moisture/Precipitation Monitoring

Precipitation in the dunes will be measured by means of the two existing remote area weather stations (RAWS) and--once installed--by the additional five RAWS. Precipitation data for these stations will be collected for each month of the year.

Ground moisture will be monitored in each 25 m plot along each transect during each plant survey. This information will be compared to milk-vetch abundance and distribution as well as to weather data.

OHV Use Monitoring

OHV use levels will be estimated by means of aerial photography, taken yearly. Sixteen air photo transects were established throughout the dunes in 1998 in order to obtain a sample of the distribution and intensity of OHV use in the dunes through the measurement of vehicle tracks. The aerial photographs obtained from these transects are at a 1:7000 scale, allowing the detection of vehicle tracks. These transects were flown on Easter weekend 1998 and re-flown on Easter weekends in 1999, 2000, and 2001 (because of the ephemeral nature of vehicle tracks in sand, it was necessary to take the photographs during a weekend of relatively high vehicle use). The location of these air photo transects is shown in Willoughby 2000, along with the results of vehicle track frequency measurements for 1998.

The photographic information collected in 1999, 2000, and 2001 will be mapped and assessed for changes in use-levels and use-patterns.

In one year during the first four years following RAMP implementation, aerial photography will be obtained to achieve complete coverage of the dunes. This photography will be taken during three heavy OHV-use weekends in one recreation year (a recreation year begins in October of one calendar year and runs through Easter of the following calendar year). Photographs will be collected during Easter, Thanksgiving, and Presidents' Day weekends, which are historically high-use weekends. OHV use will be measured on these photographs using the methodology discussed below. Following analysis of these data, a determination will be made as to which high-use weekend provides the best index of OHV use or whether future aerial photography should be rotated between two or all three of these high-use weekends. Following the initial four-year period, aerial photography will be obtained for one high-use weekend per year.

Aerial photographs will be sampled by means of a grid of points to estimate the cover of vehicle tracks in the dunes. The size of the grid and number of points per transect will be determined based on pilot sampling to meet the sampling objective described below. Future aerial photographs will be registered so that sampling grids can be placed in the same area in each year.

The transects and 25 m segments used during plant monitoring (described above) will be overlaid on aerial photographs to allow comparison of OHV-use levels and plant abundance and condition.

Based on the above analyses, the calibration study (see Box 3, described below) and general assessment of the photographs, aerial photographs will be used to produce GIS maps depicting areas of the dunes subject to high, medium, and low levels of use. These maps will be compared over time to allow assessment of changes in use intensity or use patterns over time.

Sampling Objective: Sampling will be designed to achieve yearly estimates of OHV track cover that are within 30% (relative) of the true OHV track cover at the 95% confidence level within each of the 9 management areas. Sampling will be designed to allow mapping and quantification of “high,” “medium,” and “low” use areas within each management area. A methodology for determining high, medium, and low use areas will be developed in coordination with the FWS. It is unlikely this sampling objective can be met for the wilderness area since the OHV track cover there will likely be extremely low. This sampling objective may be modified based on pilot sampling.

Calibration Studies: OHV Use and Rainfall (Box 3):

Since we are not able to estimate OHV use or rainfall directly for the whole dune area, we must rely on indices: the number of tracks from aerial photos and a measurement of ground moisture in discrete areas throughout the dunes. To understand what these indices mean in terms of true OHV use, calibration studies will be performed. For the OHV index, a known number of OHV-hours will be run in a replicated sample of un-tracked areas. The area will then be aerially photographed to calibrate the track counts with a known number of OHV-hours. This study may be conducted concurrently with the experimental study on OHV Effects (below) to facilitate both studies. Using this methodology, low, medium, and high-use areas will be defined in coordination with FWS. Techniques for calibration of rainfall with ground moisture levels throughout the dunes have not been developed; however, ground-moisture levels will be measured during surveys and the potential for calibration studies be evaluated over time.

The Effects of OHV Use on Peirson’s Milkvetch: Inferential and Experimental Studies.

Correlative Study within the AMA

The densities of ASMAP, HENIT, and PHSO (number of plants/hectare) will be estimated for the entire AMA, for a 1 km² control area within the AMA, and for a 1 km² treatment area within the AMA in each of the three years following implementation of the RAMP. The treatment and control areas will be selected subjectively, subject to the following considerations. The treatment area will be selected to function in a manner similar to the key area concept in rangeland management. As defined by the Society for Range Management (1998), a key area is:

A relatively small portion or a pasture of management unit is selected because of its location, use or grazing value as a monitoring point for grazing use. It is assumed that key areas, if

properly selected, will reflect the overall acceptability of current grazing management over the pasture or unit as a whole.

Holechek (1988) and Holechek et al. (1998) point out that the key area concept has been highly useful to managers in evaluating the effects of grazing on rangeland vegetation. It is in wide use and is an accepted practice on Bureau of Land Management, Forest Service, and private rangelands (Habich et al. 1996). The concept should apply equally well to the evaluation of the effects of OHV use on ASMAP, HENIT, and PHSO. Just as for key areas in rangeland management, the treatment area will be selected to best reflect the effects of OHV use in the entire AMA. The control area will be selected to be as similar as possible in terms of habitat characteristics and weather to the treatment area.

The control and treatment areas will be rectangular in shape, with the long side of the rectangles oriented along the NW-SE dune gradient (discussed above under yearly monitoring for ASMAP, HENIT, and PHSO). The treatment and control areas will be 200m x 5000m in size and shape. An area 220m x 5020m in size, encompassing the control area with 10m added to each side of the rectangle to eliminate edge effect, will be signed closed and patrolled on a regular basis by law enforcement personnel. The treatment area will remain open to OHV use. The NW-SE orientation will incorporate more potential ASMAP, HENIT, and PHSO habitat within the control and treatment areas than would other orientations. Belt transects will also be used within the 1 km² AMA treatment and control areas, but an attempt will be made to completely census the treatment and control areas at least for ASMAP and HENIT. This would be accomplished by counting all plants of these species in contiguous 25m wide belts. If practical, PHSO will also be completely censused. Monitoring in the first year following implementation of the RAMP will determine whether complete censuses are practical.

Estimates for the treatment and control areas will be compared for each year. Comparisons will also be made between the responses of ASMAP, HENIT, and PHSO in the AMA as a whole and in the treatment area. These comparisons will be used to determine if the treatment area is adequately reflecting the effects of use in the AMA. If not, then a new treatment area will be selected or another treatment area added.

An attempt will be made to conduct actual censuses of the three species in the 1 km² control and treatment areas of the AMA. If this proves to be practical, then there will be no sampling error associated with the population sizes measured for these two areas. If this is not practical, sampling will be designed to achieve yearly estimates that are within 20% of the true total population size at the 95% confidence level for each area. The objective for change detection will be to detect a 30% change between two average-to-above-average rainfall years with a statistical power of 90% and a false-change (Type I) error rate of 10%. The use of the control and treatment areas within the AMA is discussed further under a separate heading, below.

Comparative Evaluation Between Milk-vetch Surveys and OHV-Use Surveys

As described in the ASMAP survey section (Box 2) 25m x 25m subplots will be established along milk-vetch survey belt transects. These subplots will subsequently be identified on aerial photographs developed for OHV monitoring. Milk-vetch abundance will be compared to OHV use levels.

The correlative studies described above allow inferences to be made regarding effects of OHVs on ASMAP. In addition to the correlative studies described above, a manipulative study is necessary to quantify the effects of OHV use on the reproductive capability and persistence of milk-vetch plants.

Experimental Study 1

Experiment number 1 will be conducted during on two separate occasions: (1) in the spring of a year that experiences rainfall at or above the long-term mean, and (2) in the spring of a year that experiences rainfall below the long-term mean. The experiment will be conducted twice under different conditions to ascertain whether the effects of OHV use are different under different weather regimes. At least eight 200 m x 200 m plots will be selected and subdivided into four 100 m x 100 m treatment plots. Four treatments (no, low, medium, and high OHV use) will be applied, with 8 replications for each treatment.

The definition of use categories will come from the OHV correlative study (described under Box 3) to make sure these are relevant treatment levels. Each plot will be censused for milk-vetch, before and after treatment is applied, and two months following treatment. During the census, the following variables will be measured: (1) the number of ASMAP individuals and ratio of seedlings to adults and (2) the number of plants with evidence of vehicle damage.

Analysis of data:

The null hypothesis is that there will be no treatment effect. The alternative hypothesis is that there will be an ordered treatment effect.

A randomized complete block design will be used, with eight 200m x 200m plots, each subdivided into four 100 m x 100 m sub-plots placed in different areas of the dunes. The reason for blocking is to remove spatial variability between blocks from the analysis.

Analysis will be on the before-after differences in the three variables (number of ASMAP individuals, ratio of seedlings: adults, and number of ASMAP plants with evidence of vehicle damage). Results will be displayed graphically showing mean difference by treatment with error bars corresponding to 90% confidence intervals. Effect sizes will be measured and evaluated for a difference. Each variable will also be analyzed using an analysis of variance (ANOVA) that accounts for the effects of blocking. The experiment-wise Type I error rate will be set at 0.10. A *P* value from the ANOVA less than 0.10 would also indicate that there is a treatment effect. Post hoc tests will then be conducted to determine which pairs of treatments differ. These post hoc tests will control for the experiment-wise error rate.

Experimental Study 2

The second experimental study will quantify the impact on individual plants from being run over by a vehicle. The study will follow the general guidelines of a previous study conducted by Pavlik (1979) but will be conducted with a larger sample size.

Milkvetch Biological Studies (Box 5):

Additional biological information regarding the life-history of ASMAP is necessary to model the population, predict the population response to management options, and effectively manage the population. Information that is necessary to determine the effect of management options on this species include studies that address the questions listed below. These studies will be conducted by BLM, other Federal or State agencies, non-governmental organizations, or universities as funding is secured. These studies will address the following questions:

- What are the relative contributions of adult and seedling milk-vetch plants to the seedbank?
- Are seeds produced by milk-vetch seedlings viable?
- How much ground moisture is required to stimulate germination of milk-vetch seeds?
- How long do milk-vetch seeds remain viable?
- For how many years do adult milk-vetch plants remain reproductive?

Development of Milk-vetch Models (Box 6):

Our current understanding leads us to believe that two key variables, rainfall (moisture) and OHV use contribute to ASMAP dynamics in the Algodones Dunes. The information obtained from the surveys and studies listed above will be used to evaluate several models of ASMAP dynamics as they pertain to these variables. The area occupied by ASMAP may increase or decrease in response to OHV use, precipitation, or a combination of these factors. Each model will predict the impact of an action, which will result in some expected return in terms of the objective. Initially, each model will be given equal weight. Over time, each model of ASMAP dynamics will receive different weight based on monitoring and study results.

Management Options (Box 1):

The initial management option for the RAMP will be unlimited OHV use in 5 Management Areas, continued closure of the North Algodones Dunes Wilderness to OHVs, and 525 vehicles per day permitted use in the AMA. This management option will be assessed by studies and monitoring of milk-vetch populations to better understand the dynamics between moisture (precipitation), varying levels of OHV use, and milk-vetch reproduction, numbers, and distribution. In the future, management of each of these Management Areas may change

in response to identified changes in the milk-vetch status in each unit and information gained from the aforementioned studies. Possible management options include those based on a permit system that would allow a specified level of use (high, medium, low, no use), temporally based closures or limitations (open during some months or years, closed in others), recognition and management of subunits within a management area, and/or increased education and outreach to OHV users to avoid certain areas. Most of these changes to management areas other than the Adaptive Management Area, discussed below, would require an amendment to the ISDRA Plan.

Adaptive Management

Adjusting the number of permits in the Adaptive Management Area:

No change in the number of riders permitted to use the AMA will be made until 4 years of monitoring and research data have been collected and analyzed. It is anticipated that differences in density of 30% percent between a baseline year and a subsequent year with comparable rainfall would be both detectable and biologically significant. If this level of change in milk-vetch abundance, distribution, or density occurs within the AMA, the BLM may adjust the management option in this Management Area. If a decline of this magnitude is observed, BLM may adjust management to a management option that provides increased protection for ASMAP. If an increase of this magnitude is observed, BLM may adjust management to a management option that allows increased recreational use of the area. No change in the number of riders permitted to use the AMA will be made until 4 years of monitoring and research data have been collected and analyzed. Several sources of information will then be used to determine if and when to adjust the number of OHV permits within the AMA: (1) comparison of the densities of ASMAP, HENIT, and PHSO in the control and treatment areas (correlative study within the AMA); (2) between-year comparison of the use patterns and use levels within the AMA; and (3) results of OHV impact studies described above.

Adaptive Management in other Management Areas:

Monitoring and studies will be conducted during the first four years of ISDRA Plan implementation in accordance with the Implementation Schedule below. After this four-year period, BLM will reinitiate Endangered Species Act (ESA) Section 7 consultation with the U.S. Fish and Wildlife Service so that scientific information collected as part of this monitoring/study plan can be fully integrated into the ESA Section 7a(2) analysis for this action. This consultation will also allow revision of the interim threshold, identified below, if sufficient information has been obtained and identification of the adaptive management strategy to be used if milk-vetch populations decline below threshold levels.

Interim threshold: If the population of Peirson's milk-vetch in any of the management areas declines by more than 50% in two years of average to above-average growing season precipitation, BLM will re-initiate Section 7 consultation with FWS.

If BLM is unable to conduct monitoring and studies scheduled during the first four springs of RAMP implementation, BLM will re-initiate consultation with FWS.

Peirson's Milk-Vetch Monitoring/Study Implementation Schedule and Cost

	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008
Precipitation monitoring (installation of weather stations and development of data base)		X \$125,000			
ASMAP Monitoring Surveys*	X \$140,000	X \$140,000	X \$140,000	X \$140,000	* \$140,000?
Dune-wide aerial survey (OHV use-patterns) and analysis (including mapping)			X \$186,000		X \$62,000
OHV Use Calibration Study (cost included with Experimental Study 1)		X			
Experimental Study 1 (OHV Use) **		X \$30,000			** \$30,000
Experimental Study 2 (OHV Use)				X \$15,000	
AMA correlation study (OHV Use)	X \$10,000	X \$10,000	X \$10,000	X \$10,000	X \$10,000
Survey/aerial photography comparison (OHV Use vs. Milk-vetch Abundance in 25m Sub-Plots)			X \$10,000	X \$10,000	X \$10,000
Compilation and mapping of 1999, 2000, 2001 OHV use data	X \$10,000				
Development of Milk-vetch Models					X \$20,000
Coordination with FWS Regarding Threshold Adjustment				X	
Estimated Cost for Fiscal Year	\$160,000	\$305,000	\$346,000	\$175,000	\$102,000 or \$242,000

* After the first three years, dune-wide ASMAP surveys will be conducted during “wet” years, likely every 4-5 years.

** The “dry year” repeat of Experimental Study 1 will be conducted in the first dry year after 2007.

Note: There is flexibility over which studies are funded during which fiscal years. The table above assumes that Experimental Study 1 will be conducted in FY 2005, that dune-wide aerial surveys will be flown during Thanksgiving weekend, Presidents’ Day weekend, and Easter weekend of 2005-2006, and that Experimental Study 2 will be conducted in FY 2007. Other combinations are possible depending on funding availability for particular fiscal years.

Algodones Dunes Sunflower (HENIT)

Algodones Dunes Sunflower will be monitored in conjunction with Peirson's milk-vetch (ASMAP). Estimates of population size and the other parameters listed under the description of ASMAP surveys will also be made for HENIT using the same methodology described for ASMAP, including a belt transect width of 25m, except that different stage classes than those employed for ASMAP will likely be necessary due to the different morphology of HENIT. The OHV use monitoring described under the ASMAP section of this monitoring/study plan will also be used to determine correlations between levels of OHV use and abundance of HENIT. Experimental studies 1 and 2 described under the ASMAP section are primarily directed toward determining the effects of OHV use on ASMAP, but to the extent HENIT can be included in these studies it will be. In other words, the same measurements performed on ASMAP will also be performed on those HENIT individuals present in the ASMAP study plots. It may not be possible, however, to locate these study plots in a manner that incorporates sufficient numbers of both species to achieve similar levels of statistical confidence in the results for both species. These studies will be designed with the primary objective of determining the effects of OHV use on ASMAP (see study objectives in the ASMAP section), with the result that statistical confidence in the results for HENIT may be lower (perhaps much lower) than those for ASMAP.

Biological studies of HENIT would also yield valuable insight into the ecology of this species and BLM will work with universities, other agencies, and non-governmental organizations to encourage the funding and implementation of these.

Sand Food (PHSO)

Sand food will also be monitored in conjunction with Peirson's milk-vetch (ASMAP). Estimates of population size will be made for PHSO using the same methodology described for ASMAP, except that a narrower belt width will likely be necessary for PHSO owing to its more cryptic nature (it is anticipated that a belt width of 5m or 10m will be used for this species) and the identification of stage classes is not possible for this species (the counting unit is an inflorescence; the rest of the plant is hidden below the surface of the sand). The OHV use monitoring described under the ASMAP section of this monitoring/study plan will also be used to determine correlations between levels of OHV use and abundance of PHSO. Experimental studies 1 and 2 described in the ASMAP section will not be applied to PHSO because—for the most part--the latter species does not occupy the same areas of the dunes as the former.

Biological studies of PHSO would also yield valuable insight into the ecology of this species and BLM will work with universities, other agencies, and non-governmental organizations to encourage the funding and implementation of these.

PSAMMOPHYTIC VEGETATION

Both the cover and density of perennial plants will be estimated annually by means of line intercept transects run perpendicular (or, along the left edge of the belt transect, if desired) to

each of the belt transects described above at systematic intervals along each belt. A line intercept transect length of 50m will be used during pilot sampling; this length is subject to change depending on how well a transect of this length intercepts the variety of perennial plants present at each sampling location. These transects will be positioned systematically with a random start at 1 km points along each of the belt transects. Along each transect, the distance intercepted by the line will be recorded by species. This will result in an estimate of cover for each species as well as an estimate for total vegetation cover. Additionally, the width of each species intercepted will be measured by means of a meter stick or other measuring device placed perpendicular to the line intercept transect at the plant's widest point. These widths will be used to estimate the density of each perennial plant, using methods described in Lucas and Seber (1977).

Sampling Objective: Sampling will be designed to achieve yearly estimates of cover that are within 50% (relative) of the true vegetation cover at the 95% confidence level within each of the 5 sampling areas. This sampling objective may be modified based on pilot sampling.

Analysis: Changes in total vegetation cover and the cover of at least the most dominant species will be analyzed in a manner analogous to that described for special status species, above.

DESERT MICROPHYLL WOODLAND VEGETATION

Monitoring of Desert Microphyll Woodland vegetation will be conducted annually, but monitoring of specific areas will be done on a five-year rotation using the protocol attached at the end of this appendix.

BIRD POPULATIONS IN MICROPHYLL WOODLAND

Monitoring of bird populations in microphyll woodland will be conducted in accordance with the protocol attached at the end of this appendix.

COLORADO DESERT FRINGED-TOED LIZARD

In 2001, 50 survey transects were completed for spring and fall in order to estimate the density of Colorado Desert fringe toed lizards (*Uma notata*) in a comparison of open and closed areas in terms of OHV use. The Algodones Dunes Wilderness Area was used as a control, while the open area to the south was used as a treatment. Using the grid established by the WESTEC Study of 1977 (WESTEC 1977), 0.45 mile square cells on the grid were selected using simple random sampling after the elimination of habitat not entirely consistent with *Uma notata*, i.e., microphyll woodland, creosote bush scrub, and any cells within 0.45 miles of a road (Gecko Road and State Highway 78).

The first 60 Cells were then numbered (south to north in closed area, north to south in open area) in a snaking pattern before simple random sampling was applied. Transects were 0.45 mile long and 10m wide belts. Surveyors were evenly spaced, and navigated the transects using Garmin III global positioning system units on NAD 83 Map Datum from west to east using the northwest to northeast grid lines. Transects were alternated from open to closed areas in order to avoid weather bias, and were also completed when surface temperatures were at or between 35-44 degrees Celsius. Transects were not completed if (1) OHV activity was observed on the transect or (2) high wind speeds and lifting sand obstructed surveyors' ability to detect the lizard.

Two surveyors tapped the ground with 2.5m bamboo sticks in front of them while surveying in order to flush lizards. Microhabitat data was collected in addition to lizard numbers; this data included type of cover used, type of escape cover used, surface temperature, physical habitat (bowl, slip-face, dune ridge, sandy flat), habitat (active dune, psammophytic scrub), aspect, age (adult, sub-adult, hatchling), substrate the lizard was on, slope (degrees), and species. Approximately 99% of lizards observed were *Uma notata*. Results from these surveys are currently being analyzed.

A similar monitoring protocol will be implemented following plan completion. In addition to applying this protocol to the wilderness area and the open area immediately south of Highway 78, monitoring transects will also be established in the Adaptive Management Area and in the open area south of the Adaptive Management Area. Fewer transects per area will be read than the number read in 2001, since preliminary analysis of the 2001 data indicate that sufficient precision can be obtained with a lower number of transects. For those areas sampled in 2001, a subset of the transects run in 2001 will be selected according to a random design (i.e., either simple random sampling, systematic random sampling, or restricted random sampling) for future measurement. For those areas not yet sampled, the WESTEC grid will again be used as described above, with transects positioned using a random design.

Sampling Objective: Sampling will be designed to achieve yearly estimates of lizard density that are within 30% of the true lizard density at the 95% confidence level within each of the 4 sampling areas. This sampling objective may be modified based on pilot sampling.

Analysis: Lizard densities in each of the five sampled areas will be compared over time to determine if there is a trend in density over time. The densities for each of the four areas may also be compared to determine if there are significant differences in density between areas, but this difference will be difficult to interpret given the variability in topography and probably climate throughout the entire dune system. It may be possible to use a multivariate repeated measures analysis of variance, as described under the analysis section for special status plants, to see if the responses of the lizards in each of the areas are parallel over time. The power of this analysis, however, depends upon the degree of correlation between years of each of the sampling units (belt transects). It is quite possible that this correlation will prove to be low with an organism this mobile, but pilot sampling should provide an answer.

Once more than 10 years of data are available, the parallel response hypothesis, even for independent samples, can be tested through regression analysis, treating density as the dependent variable and year as the independent variable.

FLAT-TAILED HORNED LIZARD

There have been approximately 20 sightings of the flat-tailed horned lizard (FTHL) in the Algodones Dunes, some well out in the dune interior. Foreman (1997) summarized existing information on FTHL habitat, concluding, "Flat-tailed horned lizards are probably rare in the unvegetated portions of major dune systems, such as the Algodones Dunes and the dunes of the Gran Desierto. (Luckenbach and Bury 1983, McCalvin 1993). However, much of the ISDRA is vegetated. Large areas of psammophytic scrub occur in the ISDRA. The only known surveys directed specifically toward the FTHL were conducted by BLM. These surveys looked at portions of the dunes near their perimeter (i.e., near roads) and consisted of 2.5 mile long belt transects that were 50 inches wide (Wright 2002). During the 77 hours spent walking these transects, two lizards were sighted (a rate of 0.026 lizards/hour). This sighting rate of 0.026 lizards/hour is much lower than sighting rates for other areas in California. West Mesa, for example, an area known to provide good habitat for the species, has a sighting rate of about 0.2 lizards/hour, while the California range as a whole is about 0.1 lizards/hour. These data appear to indicate that the FTHL is less abundant in the dunes, but the fact remains that the majority of the dunes have not been surveyed for the species.

The monitoring planned here is to search for FTHL on a randomly selected subset of the belt transects used for the Colorado Desert fringe-toed lizard. The FTHL will not be surveyed during the same time as the fringe-toed lizard transects because the FTHL will require considerably more time to read and because the FTHL must be surveyed following a wind event that erases previous lizard tracks (see below), a constraint not shared by the fringe-toed lizard monitoring.

Belt transects 724m (0.45 mile) long by 10m wide will be surveyed by teams of 2-3 observers. Observers will carefully walk the transects looking for either lizards or lizard tracks. If tracks are found, they will be followed in an attempt to find the lizard. If found the lizard will be counted as being in the belt transect. The parameter estimate will be the number of lizards detected per hour of survey. A separate estimate of this parameter will be obtained for each of the areas surveyed (Mammoth Wash, wilderness area, open area north of the Adaptive Management Area, Adaptive Management Area, open area south of the Adaptive Management Area).

Sampling Objective: No sampling objective is planned at this time. Studies in non-dune habitat (Wright 2002) have shown that detection rates of this cryptic animal can be very low and variable, leading to rather imprecise estimates of detection rate. The dune substrate allows observers to use tracks to locate lizards (something they were unable to do on other substrates), and this may result in lower coefficients of variation and more precise estimates of detection rate. On the other hand, the possible lower abundance of the lizard in the dunes may result in many zero values, leading to less precise estimates. Because of these

unknowns, there is no reasonable means of estimating the potential coefficient of variation for FTHL data. Therefore, no sampling objectives will be set until pilot sampling yields an estimate of detection rate and its standard deviation.

Analysis: Analysis of FTHL detection rates will be conducted in a manner similar to that discussed above for Colorado Desert fringe-toed lizard density. Because FTHL estimates may not be very precise it may not be possible to detect other than drastic changes in FTHL abundance, but the monitoring will at least answer questions concerning whether psammophytic scrub supports many FTHL and, if so, what the FTHL distribution in the dunes is.

OHV USE

OHV use will be estimated by means of aerial photography. Sixteen air photo transects were established throughout the dunes in 1998 in order to obtain a sample of the distribution and intensity of OHV use in the dunes through the measurement of vehicle tracks. The aerial photographs obtained from these transects are at a 1:7000 scale, allowing the detection of vehicle tracks. These transects were flown on Easter weekend 1998 and reflight on Easter weekends in 1999, 2000, and 2001 (because of the ephemeral nature of vehicle tracks in sand, it was necessary to take the photographs during a weekend of relatively high vehicle use). The location of these air photo transects is shown in Willoughby (2000), along with the results of vehicle track frequency measurements for 1998.

During the first four years of RAMP implementation, aerial photography will be obtained for the entire ISDRA during three heavy-use weekends (Thanksgiving, Presidents' Day, and Easter) in one of these years and during one heavy-use weekend every year thereafter. The data from the three heavy-use weekends will be used to determine the timing of the yearly aerial photography.

Aerial photographs will be sampled by means of a grid of points to estimate the cover of vehicle tracks in the dunes. The size of the grid and number of points per transect will be determined based on pilot sampling to meet the sampling objective described below. Future aerial photographs will be registered so that sampling grids can be placed in the same area in each year.

Sampling Objective: Sampling will be designed to achieve yearly estimates of OHV track cover that are within 30% (relative) of the true OHV track cover at the 95% confidence level within each of the 9 management sampling areas. It is unlikely this objective can be met for the wilderness area since the OHV track cover there will likely be extremely low. This sampling objective may be modified based on pilot sampling.

See the section for Peirson's milk-vetch for more information on how these estimates of OHV use will be used to make inferences concerning the effects of different levels of OHV use on particular species.

VISITOR USE

In order to obtain better estimates of visitor use on holiday weekends, the following three-part monitoring study is planned:

- Personnel will collect the following data at major dune entry points: types of vehicles entering the dunes, number of people in vehicles, and the types of OHV vehicles they are bringing into the dunes.
- Electronic vehicle counters will be used to count vehicles coming into the dunes. Local regressions on the data collected in Part 1 will be used to extrapolate the estimated population and the type and number of vehicles.
- Conduct demographic studies to obtain data on the willingness-to-pay and actual expenditure data by OHV recreation visitors under different adaptive management regimes. These elements respond to the need to account for the economic impact of OHV recreation visitors to communities.

WEATHER STATIONS

Long-term weather stations in the region do not completely capture the actual growing season precipitation occurring in the dunes. These weather stations are some distance from the dunes, the seasonal precipitation totals vary greatly between stations, and there is strong indication that precipitation varies considerably within the dunes during the same growing season (Willoughby 2000 and 2001). For these reasons, two Remote Area Weather Stations were set up in the dunes in fall 2000, one at the Cahuilla Ranger Station in the northwest part of the dunes and one at Buttercup Campground in the southern part of the dunes. These stations began collecting weather data on November 16, 2000. The Buttercup Station recorded significantly higher precipitation than the Cahuilla Station between November 2000 and December 2001. Because of this variability and the importance of precipitation in controlling the abundance of special status plants, the Colorado Desert fringe-toed lizard, and the flat-tailed horned lizard, more weather stations are necessary to enable good interpretation of the monitoring data collected. If adequate funding is secured, five additional remote area weather station facilities will be installed in the dunes. These new stations will be located approximately as follows: (1) in the extreme northern part of the dunes in the vicinity of Mammoth Wash; (2) at the wildlife viewing area just northwest of Glamis; (3) along the Wash Road west of the junction of Ted Kipf and Vista Mine roads; (4) along the Wash Road west of Cactus; and (5) along the sand highway west of Tube 1.

Precipitation data gathered by the remote area weather stations will be compared to the results of monitoring to assist in determining whether a detected increase in the population of a special status species can be solely attributable to precipitation variability. This evaluation will assist in determining what, if any, management action is required in response to a detected change in population size.

Additional Funding Required to Support Monitoring

Additional funding will be required to accomplish the monitoring described above. This funding includes both one-time and yearly costs, as detailed below. Also see the monitoring/study implementation schedule and costs for special status plant monitoring, included in the section on Peirson's milk-vetch monitoring.

Need	One-time Cost	Yearly Cost
Personnel (monitoring, analysis, and GIS support)		\$250,000
Vehicle maintenance		5,000
Remote Area Weather Stations (5 @ \$25,000 each)	125,000	
Weather Station Maintenance		5,000
Aerial Photography and analysis costs in first 4 years of plan implementation	\$186,000	
Aerial Photography and analysis yearly after first 4 years of plan implementation		62,000
Total	311,000	322,000

Personnel: Monitoring will be accomplished using a combination of full-time employees, seasonal employees, contractors, and volunteers. In addition to actually reading transects, two employees will provide logistical and safety support during monitoring periods (e.g., waiting at the end of transects with a vehicle, monitoring radio and telephone transmissions from monitors, etc.).

Remote Area Weather Stations: The need for these is discussed under the section on weather stations, above.

Aerial Photography: Sixteen air photo transects are currently being flown each year. The planned monitoring calls for complete coverage of the ISDRA during three heavy-use weekends (Thanksgiving, Presidents' Day, and Easter) in one of the first four years, and once every year thereafter. The exact location of each aerial photograph will be registered and incorporated into a GIS.

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APPENDIX C

Appendix C summarizes the methodologies used to conduct the criteria pollutant air quality impact analysis to support the Draft EIS for the ISDRA. This appendix describes criteria pollutant emission estimation data and assumptions used in the analysis.

Emission Calculation Methodology

As discussed in Section 4.11 of the Draft EIS, Air Quality, this impact analysis involved separate evaluations of criteria pollutant emission analysis for the following six scenarios:

- Existing Conditions – Year 1999 - 2000
- Future Baseline – Year 2012 – 2013
- Alternative 1 – Year 2012 – 2013
- Alternative 2 – Year 2012 – 2013
- Alternative 3 – Year 2012 – 2013
- Alternative 4 – Year 2012 – 2013

Emission inventories were developed for On-road Vehicle emission sources (automobile and recreational vehicles), and for Off Highway Vehicle (OHV)-related emission sources (motorcycle and other all-terrain vehicles).

Developing the emission inventories involved considerable data collection, to accurately reflect the existing and proposed levels of activity at the project site and the specific emission sources that would be involved.

Specific information used to calculate emissions included:

- Number and type of vehicle (quantity)
- Vehicle usage rates (hours per day)
- Number of annual and peak weekend visitors onsite
- Average speed of all vehicles
- Vehicle miles traveled (VMT) by vehicle type

The number of vehicles was estimated based on visitor activities for the ISDRA, as shown in Section 2. The most current motor vehicle emission factors were derived from the California Air Resources Board (ARB) Motor Vehicle Emission Inventory (MVEI) models EMFAC7G and BURDEN 7G (<http://www.arb.ca.gov/msei/mvei/mvdocs.htm>). OHV emission factors were derived from information available in the U.S. EPA's 1991 *Non-road Engine and Vehicle Emission Study*, U.S. EPA emission factors from AP-42, *Compilation of Air Pollutant Emission Factors*, as well as emission factors included in SCAQMD CEQA Air Quality Handbook (1993). Total emissions in terms of tons per year and pounds per day that would be generated during the calendar year and peak daily weekend periods were quantified.

Fugitive dust sources include paved and unpaved road-entrained dust. Emissions from these sources were quantified using emissions factors from the *Compilation of Air Pollutant Emission Factors (AP-42)*, *SCAQMD CEQA Air Quality Handbook* and available documentation addressing fugitive dust. Detailed emission calculation spreadsheets and estimated total construction emissions are provided below

NOTE: Links are on the next page. To open each section, [click on the text of each line](#).

ALSO NOTE: Clicking on one of these links will open a non-PDF Web page. Watch for "Tabs" at the bottom of some of these pages - click on the tab to reach that section of the document.

Emissions Factors for Alternative 1

Emissions Factors for Alternative 2

Emissions Factors for Alternative 3

Emissions Factors for Alternative 4

Estimated Future Emissions

Emissions Summary